

The Mining Journal, RAILWAY AND COMMERCIAL GAZETTE:

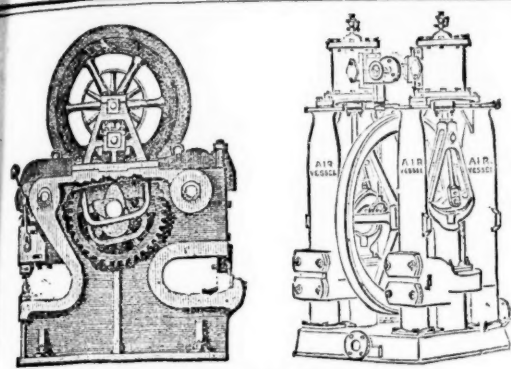
FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

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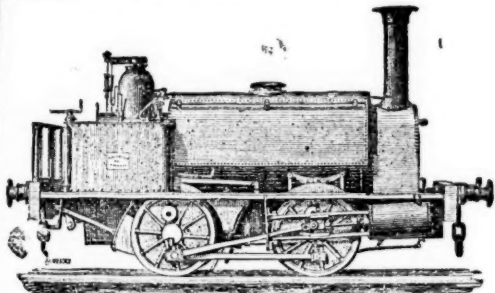


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TION," in Dublin, 1865; at the "UNIVERSAL EXPOSITION," in Paris, 1867;
at the "GREAT INDUSTRIAL EXHIBITION," at Altona, in 1869; and at the
"UNIVERSAL EXHIBITION," Vienna, in 1873.

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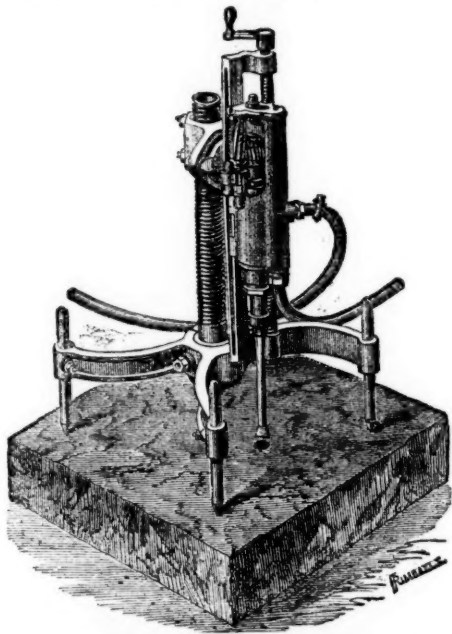
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DEAR SIR,—Messrs. Jeffry and Nevill, of the Leas Nalls Mining Company, came

here from Scotland last week to see the borer at work in Sir Francis level. They
went back highly pleased with what they saw. The level, which is just now going
at £7 per fathom, they stated could not be moved at Lead Hills for less than £15.
Five holes, between 6 ft. and 7 ft. deep, had been bored during the shift, and were
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dous quantity of stuff, and filling the level right up to the roof.
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good as ever. I think you will be hearing from Lead Hills before long, for seeing
is believing. You can make any use of this you like.
Messrs. McKean and Co. Yours truly, GEO. W. DENYS.

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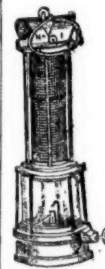
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The advantages over other Rock-boring Machines claimed for the "Kainotomon" are—

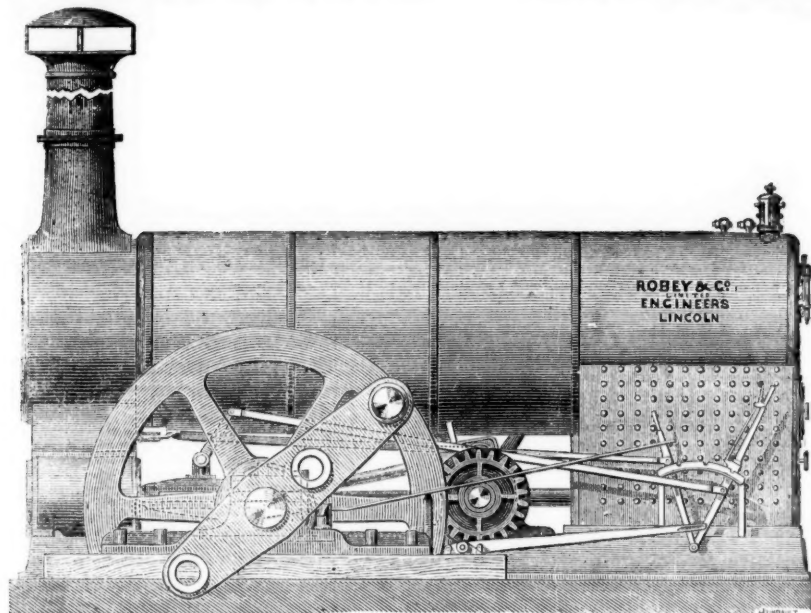
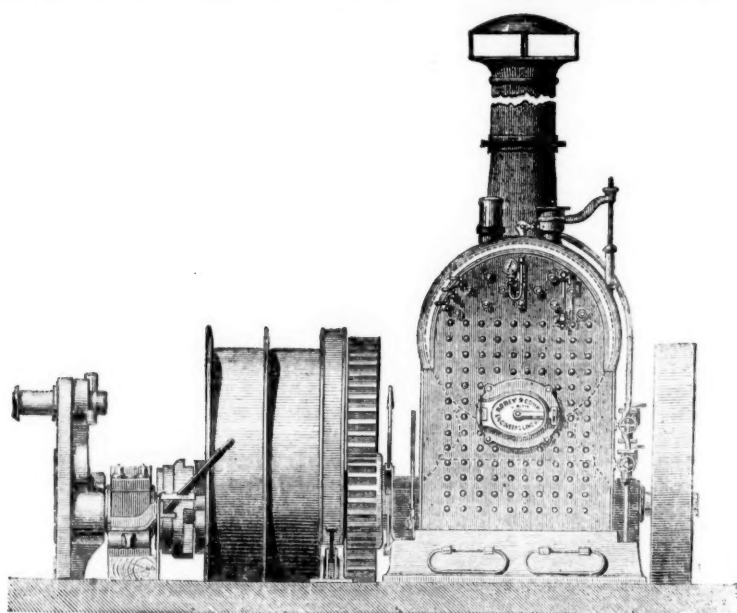
- 1.—It is much shorter.
- 2.—It is much lighter, and more readily removed from place to place.
- 3.—It requires the turning of ONLY ONE, instead of a number, of set screws, to fix it in position at any angle.
- 4.—It may be fed 3 inches out of stroke, without stopping the working of the drill, an invaluable advantage.
- 5.—It is not liable to derangement.
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- 9.—The rotation is compulsory, and regular.
- 10.—40 lbs. pressure only is required to work it.
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- GREAT SAVING IN FUEL.

This New Patent Mining Engine is free from all the objections that can be urged against using the Semi-Portable Engine for permanent work, because it possesses the rigidity and durability of the Horizontal Engine, and at the same time retains the advantages of the Semi-Portable, in saving time and expense in fixing.

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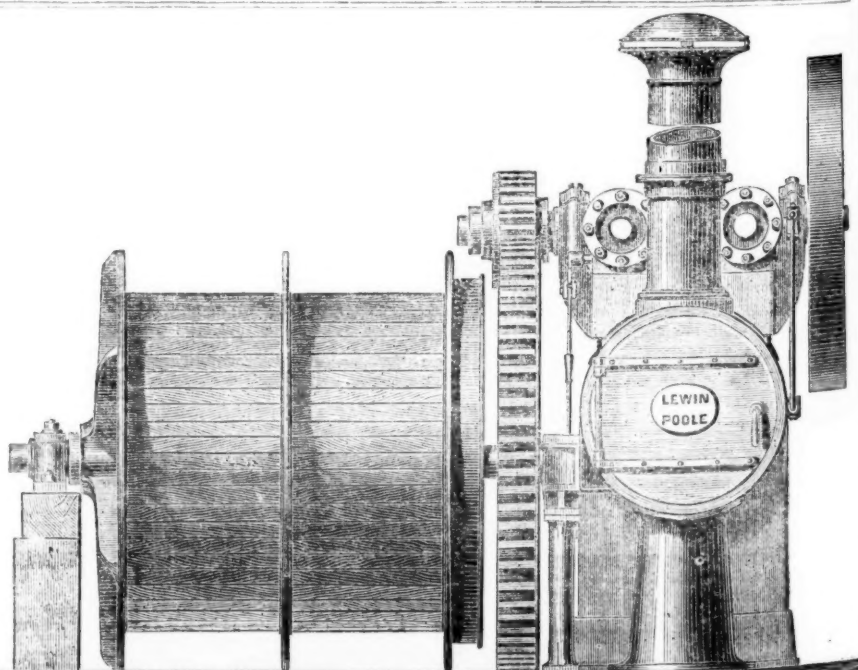
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Original Correspondence.

MINING ON THE PACIFIC COAST—No. III.

Sir,—The "Blue Lead," as the great gravel range spoken of in my previous letters is sometimes called, passes across Nevada County of this State, near its centre, and within the boundaries of the county. It has been opened at various points, and some of the most productive properties in the State are now being worked in this locality—prominent among which are the Blue Tent, Sergeant and Jacob's, Birdseye Creek, Little York, and those in the neighbourhood of Dutch Flat. At Blue Tent the old river channel has been cut by the South Yuba river, which now flows 500 or 600 ft. below the bottom of the ancient river, forming a deep canyon, with rugged and precipitous bluffs on either hand. On the south bank of the stream, and stretching back to the summit of the ridge southerly, and bordering the river, which sweeps around in a half-circle for the distance of nearly 1½ mile, is situated the property of the Blue Tent Consolidated Hydraulic Gold Mines of California (Limited). In compliance with my last letter, I will devote this one to the description of what I consider a representative hydraulic mine of California.

This property was purchased by the present owners (a London company) last summer, and embraces altogether an area of 600 acres, 500 acres of which are covered by United States patents. Owing to the shape of the river, the northern boundary of the property assumes the form of a crescent, enclosing fully two-thirds of the estate, and, as the eastern boundary is formed by a very deep ravine, about three-fourths of the entire property is open for outlets into the South Yuba. From the river front the ridge rapidly rises, passing southerly, until at the southern boundary the gravel reaches a depth of quite 1000 ft., and, as the rim rock is visible on either side of a distance of 3500 ft. apart, the width of the dead river channel is easily determined; and as the property occupies 5000 ft. along its course, it is not difficult to estimate the number of cubic yards of gravel contained within the estate.

Prof. Silliman, in his report on the property in April, 1872, makes the following estimate:—"Taking as the width 2000 ft., by 4900 ft. in length, and from the bed rock up 120 feet for the richest deposit, he finds that there are 43,555,555 cubic yards of this section, and of the upper gravel above the zone of 120 ft. he puts down at 350 ft., which contains 372,310,807, making a grand total of 415,866,359 cubic yards of auriferous gravel contained in the entire property." In computing the value of the grey or upper gravel, he puts it at 10c. per cubic yard, or 4c. per ton, and for the lower or blue gravel, 50c. per cubic yard, "or a total value of the gravel contained in the Blue Tent property of \$59,008,857." "Deduct," he says, "25 per cent. for working \$14,725,214, and \$44,283,643 is left as the probable net value of the gold contained in the property." "But," Prof. Silliman goes on to say, "A more satisfactory mode of computation of values obtainable in the actual working of auriferous gravels is found in net returns from a given amount of water used in working. This datum is furnished by facts obtained while I was on the ground, from which it appears that the gross value of water used has been as nearly as possible 50 c. per inch, which corresponds to the net value of 3½ c. per inch. Let us call it 3½ c. or \$300 for each 1000 miners' inches of water used for 24 hours. This very simple mode of calculation gives us the means of determining the productive capacity of the property, the amount of available water being known."

With regard to outlets, Mr. George D. McLean, superintendent of the Sweetland Creek Gold Mines (Limited), in a report on this property says—"The rim rock circles with the river (Yuba), which latter forms mainly the northern boundary. Traversing at irregular intervals the precipitous slope intervening and connecting directly and indirectly the rim rock with the river, are Johnson, Gophir, Cady, Sailor, and Enterprise ravines. Owing to the shelving profile of the country, and the confluence of these ravines with the Yuba, the wealth of this deposit is laid open along its entire width for more than a mile upon the river the receptacle of the debris. The washings are all situated towards the northern margin of the estate, so as to render available in sluicing the deep gorges or canyons mentioned tributary to the Yuba."

Possessing, then, as this property does in a very high degree, two of the three essentials for a valuable mine—to wit, gravel and outlet—the only question left for consideration is the water supply; and, as the value of the property depends wholly on the amount used, it is by far the most important of the three.

The property possesses two ditches, with a combined capacity of 800 in. for about four months of the year—a supply inadequate to operate even one of the numerous outlets; and, in order to supply the deficiency as far as possible for the present, the company have arranged with the South Yuba Canal Company to supply them with 1500 in. until their proposed canal is completed, and at my recent visit a few days since they were using this amount in addition to their own, or about 2200 in. in all.

At present only two outlets are completed, but even with these double the present supply can be advantageously used, and by opening other outlets the amount could be multiplied to many thousand inches, every additional inch increasing the yield of gold dust. If, therefore, every 1000 inches of water yields a net profit, according to the statement of Prof. Silliman just quoted, of \$300, 5000 in. would yield \$1500 per day, which for 180 days (six months' water season) would be \$270,000. This result can be more than realised by this company when they complete their canal and reservoir system now in contemplation. A portion of the work has, I believe, been completed, and by the expenditure of about \$100,000 at least 5000 in. will be supplied not for six months, but for nine, or perhaps ten; and I must confess that I was very much surprised on my late visit that so essential a matter had not already been attended to. Col. Tozer, the able and courteous superintendent, informed me that he expected to pay out for extra water this season \$30,000, which would even then secure him but a limited supply. He also stated that the work could be finished and in complete running order within 90 days if vigorously prosecuted, and that if it had been commenced at the proper time this spring the company would now be realising large returns from the use of the water, besides the saving of the \$3000 per month paid to the South Yuba Canal Company. The want of funds is, I believe, the only obstacle in the way of a speedy completion of this necessary work, and I am informed that most of the required amount has been raised in London; if so, it ought by all means to be applied as soon as possible, so as to utilise at least a portion of this season's water.

Up to the time the present company became possessed of the property it had been worked separately by different owners, as well, perhaps, as it could have been done in segregated lots, and by men cramped for means to properly develop their mines, and supply them with water. But a marked change has taken place under the new management; the extensive and substantial works erected of late, the energy and intelligence manifested everywhere about the premises, evinces the presence of a master mind in the direction. Col. C. W. Tozer took the management last summer, when everything was in chaos; the several claims had to be consolidated, and their works united, to operate under one system, most of which had gone to decay, or were imperfectly constructed; buildings, flumes, and roads had to be built, and tunnels and reservoirs had to be made. He has within these few months, and by the judicious expenditure of some \$25,000, perfected as fine a set of works as can be found on any hydraulic mine in the State. The South Yuba claim, hitherto worked through a surface cut, is now drained by a bed-rock tunnel, 7 ft. wide, by 7 ft. high, and 400 ft. long, the upper end of which is now 60 ft. below the surface of the bed rock in the pit where the washing is now being carried on. Along the entire length of this tunnel is laid a flume, 5 ft. wide and 3 ft. deep, from the mouth of which to the river has been constructed a very ingenious system of flumes, drops, and under-currents for saving the gold. As the mass of water, laden with debris and gold dust, flows from the mouth of the tunnel, it drops 25 ft., where a section of flume, 100 ft. long, by 8 ft. wide, conveys it to another drop of 90 ft., when another section receives it, to be again dropped, and so on until it is finally discharged into the river 500 ft. below. Along this flume at convenient points are placed four large under-currents, 36 ft. long, by 20 ft. wide (the largest in use), forming altogether one of the most complete gold-

saving apparatuses I have ever seen. The drops serve to break up and disintegrate the cement and pipe-clay which have escaped the action of the nozzle above. The end-wood blocks, with which the flume is paved, and the under-currents collect the gold, while the great mass of worthless matter is carried away by the water. At the time of my recent visit 750 in. of water was being forced through one of Fisher's hydraulic machines, under a pressure of 250 ft. in this claim. The nozzle, 5½ in. in diameter, was directed against a bank of gravel 150 ft. high, and, what with the rush and roar of the solid stream being hurled against the bank, the crumbling crashing of the falling earth, and the rumbling sound of the huge boulders as they went huddling down the shaft into the tunnel below with the great volume of turbid water, produced a wonderful display of power, both startling and awe inspiring.

The other principal works are at the Enterprise claim, some distance to the eastward. At this point the most extensive operations are now being carried on. Two of Fisher's and one of Craig's machines are in operation, using 1500 in. of water. The outlet here is through Enterprise ravine, in which is laid a flume, 456 ft. long, and 8 ft. wide, with six drops of various heights, and five under-currents of the same size and pattern as those already mentioned. Where this washing is being done the bank is 300 ft. high, and about 200 ft. above the bed rock. The gravel bed here being too deep to work advantageously in one bench, the plan is to wash off the surface down to a depth of 250 ft. to 300 ft., and to follow with another system of works down to the bed rock. This will be done next season through a bed rock tunnel to be constructed from Enterprise ravine.

There have been removed from the different claims comprising the property from their discovery to the present time, as near as can be ascertained, about 6,000,000 cubic yards of gravel, with a gross yield of about \$800,000, which is a little over 15 c. per cubic yard; but most of the gravel was from and near the surface—hence the poorest gravel. The only portion of the stratum of blue gravel which lies below that has been washed is 37,271 cubic yards, which yielded \$10,100, or 27 c. per cubic yard.

Now, Sir, in this mine we have a fair sample of a California hydraulic mine; hundreds are being worked to-day by individuals and corporate companies, and enormous profits are being realised, while thousands more are yet to be opened in the immediate future, for it is conceded here that a safer investment, or one likely to produce larger returns, cannot be found even in this land of big dividends.

San Francisco, April 22.

JAMES P. CLOUGH.

THE EMMA MINE.

Sir,—I see, as usual, some unreflecting person who knows all about it, and far more than those who have often inspected this mine, and live on the spot, making comments on the section of the Emma made by "Fair Play." He calls it ideal, and taken from some book, &c. The diagram was made simply to illustrate the facts, but taken from Nature, therefore his conclusions are not founded on data, and certainly ideal on his part. As regards the word lode, or vein, as applied to the Emma, it is too well known that the Emma is a bed, or strata vein; but in writing one speaks of vein or lode in general terms. I will now point out to those who may have read "Fair Play's" letter in a contemporary, of April 11, the curious coincidence in Mr. R. W. Raymond's official report to the United States Government, with reference to the Emma Mine. He says, "Without any marked croppings, there was nothing upon the surface to indicate that there could exist such an immense mass of ore, at only 50 ft. below the surface, except a slight discoloration of the limestone, and a few minute streaks of ferruginous matter. The same has been the case all through in the deepest workings, nothing to indicate that the mine would ever again produce a pound of ore, especially after the first slide was met with, and yet ore from 1000 ozs. to 142 ozs. per ton was discovered. The same occurs again in the bottom of the mine. The indications are not great, but sufficient to prove to any man experienced in limestone formations, but yet small enough to scare those who do not understand them, that a new and great bonanza is not far off. Therefore, neither at surface nor anywhere does the Emma Mine show beforehand any great indications of a bonanza being in close proximity. These appear as sudden as meteors. The next bonanza will astonish everybody, and make their hair stand on end, if we are to judge by analogy as to the present indications in the bottom levels."

Salt Lake City, May 1.

FAIR PLAY.

UTAH MINES.

Sir,—Will you allow me a little space to enlighten the English public, through your extensively read Journal, by laying before them the reply which I got the other day from a mining friend in Utah to a question which I asked him respecting two mines out there, which, if we may judge by the quoted prices, are at present in pretty good odour with us?

As I saw by the weekly statements, so regularly inserted, that these two mines were wonderfully flourishing, I wished to gain all the information I could, with an eye to investing in them; and, being fortunate in having some friends in Utah engaged in mining, I sent one of them over to these two mines, to gain all the information possible, that I might be certain as to the truth of their statements before purchasing. My friend's very significant and laconic reply, sent without delay, was in these words:—"The stock is chiefly in the hands of the vendors, and the price will keep up until they have disposed of their shares, when it is sure to fall." Now, this appears to me to be the exact history, so far, of all previous operations with every Utah mine palmed upon the credulous English public.

The Salt Lake mines brought over here are invariably deposits, called for deceiving purposes strata veins, and not one of them is a fissure vein—i.e., a true vein. In the former the ore is more readily come at in quantity, and, as a rule, with comparatively little preliminary expense, but these deposits are most uncertain as to permanency, or we may say are almost certain as to non-permanency, but during the emptying of these bonanzas, and the regularly declared (but not necessarily earned) monthly dividends, the vendors are diligently unloading their shares upon the public, and at the same time, with most laudable assiduity, disseminating their wonderful cables. Now, it will be well if my mining friend's weighty answer be remembered should any daring vendors again try to impose upon us. I have not a share in either of these mines, neither ever had any interest in them, nor do I intend; but we have every reason to expect that when these vendors, who so industriously circulated their weekly output, &c., have unloaded their shares in the present or any future Utah mines that a result similar to the one my friend foretells will speedily follow.

We have not the slightest guarantee for the truthfulness of any cables or reports sent us, as they may be, and probably are, quite as truthful as those with which we were favoured during the reign of those bright specimens Hussey and Maxwell. When I was a shareholder in Flagstaff, having bought 60 shares at 16½ each, I got a circular from the board showing the mine to be doing such marvellous things that I wrote asking the directors (I think the thing was signed by Balster or Maitland) what guarantee they had for the truth of these reports, but to this letter I got no reply; and, being very anxious, also suspicious, I came up to town, and twice very carefully examined the books, also the men; and from two or three little things which I noticed, and from some conversation with Stanford, I concluded there was a great "delusion" being perpetrated, and, therefore, I at once sold out, losing 8½ per share.

The retrospect of Utah mining for the last three or four years must be anything but a pleasant one to us on this side the water, for, as far as I can see, every Utah mine which has been on the English market for two years has been either liquidated or is now quoted at a ruinous discount.

My friend tells me there are hundreds of good mining prospects in the hands of the original prospectors, generally labouring miners, some of whom own above a dozen claims, and are very ready to sell. These claims, judiciously chosen and economically worked, will well repay the investors, but the added expense of London management and the interest on the immense sums which the promoters and vendors net when Utah mines are floated in England, preclude any chance of their succeeding with us under present circumstances.

We have been fearfully bitten by our cousins over the water, but

now, fortunately, have become a little awake, and he will be an extraordinarily clever schemer who can foist upon us anything whatever in the Salt Lake mining way during the present temper of the English investing public. *Verb. sap. sat. est.* A SUFFERER.

NOTES ON TAQUARIL MINE.

Sir,—Having read in the Journal a short time since a letter concerning this mine, allow me to offer a few remarks. Being in Brazil at the time when the company took charge of it, and hearing so much about its wealth, I, with others, took an interest in it, and was in hopes to see a good and permanent mine. Everything went on well for a time, and after a good deal of expense the pumping-wheel, flat-rods, and pumps were got to work. I must say the engineer was not very economical for a new mine; but he, as well as others, having heard such wonderful reports concerning the richness of the mine, no doubt felt justified in erecting the machinery as he did. When the old workings were reached they were rich, as we all were soon informed, and it was then thought second to none in the Brazils. But in a very short time the gold was lost, as quickly as it was found, and the prospecting was continued for a short time, but without success. I will here mention that the manager, T. S. Treloar, to his credit, reduced the surface force as quickly as possible. I have a strong impression that there are vast riches yet in Taquaril Mine. The vein is what is commonly called a pocket vein, and if the company were to drift on the course of the vein by shallow adits, there is every probability of meeting with many more rich pockets such as were found when they cleared the old workings. I am anxious that my fellow-shareholders should know my opinion, and not to throw all the blame on the manager at the mines, or the manager in England, those gentlemen being fully alive to their business.—*Doljelly, May 26.* J. C.

BLAKE'S ORE CRUSHER—H. R. MARSDEN, LEEDS.

Sir,—I read with great interest the able letter of Capt. George Rickard, in the Supplement to last week's Journal, respecting my Blake's Stone Breaker, *re* Improvements in Mining. Referring to that portion of the letter suggesting the question whether by constructing my machines larger and more powerful they could not with good effect be made to crush rocks of a much larger size to advantage, I beg to reply that this idea has been practically and successfully carried out by me; for while my 15 × 9 machine, weighing 6 tons, is capable of doing all the ordinary work of the mine, I make another of 20 tons weight, which will take in a stone of upwards of ½ ton, which, I imagine, is as large as they ever have to deal with. Thanking Capt. Rickard for his courteous reference, and yourself for insertion, I remain, gentlemen, H. R. MARSDEN. Leeds, May 27.

PYRITES AS A SOURCE OF SULPHUR, IRON, AND COPPER.

Sir,—As an appendix to the paper on "Pyrites as a Source of Sulphur, Iron, and Copper," published in last week's Journal, allow me to insert the following remarks kindly offered by Messrs. Miguel Iglesias and Sons, of King's Arms-yard, London. All Tharsis ore is shipped at Huelva, besides other kinds, but a very large proportion of the pyrites imported into this country comes from the Portuguese and Spanish ports of the Guadiana. For instance, last year 250,000 tons of Tharsis and other ores were shipped from Huelva, and over 200,000 tons from the Guadiana, almost entirely from the Portuguese port of Pomaron. The importations from Norway are of considerable importance, probably exceeding in amount those from Belgium, Cornwall, Wicklow, Westphalia, Pomerania, and Sweden put together. The average of 5000 assays by the wet process for copper of ores of the Tharsis description is very close to that found by the writer:—

Average (Messrs. Iglesias and Sons) 2.76

Doitto (Messrs. Wright) 2.75

On the other hand, the average percentage of sulphur found is somewhat below that given by the writer—19.07. The copper percentage given by Clapham, also by Wedding and Ulrich (4.21 and 3.10 respectively), are considerably above the average of the pyrites imported. Although the cupriferous pyrites imported into this country is all very similar in its average composition as regards iron, sulphur, and copper, the silver value of ores from different deposits varies very considerably, the average of one ore being from ½ oz. to 3 oz. of silver per ton of ore, and the average of another being 3½ ozs. to 4 ozs. in each case, together with traces of gold.

Since the fact has been recognised that these metals can be profitably extracted, many thousand ounces of silver have been recovered, in addition to gold enough to repay the cost of working; and as the plant required is most inexpensive, it is greatly to be regretted that the process is not universally adopted. It is certain that within the last ten years silver and gold of a net value of at least a million sterling have been allowed to run away in the waste liquors from metal-extracting processes. In reference to the process for preparing a factitious pyrites by fusing together oxide of iron and alkali waste, I am informed by Mr. Gossage that a patent for this purpose was taken out by Mr. W. H. Gossage, on July 17, 1850 (No. 13,177), Mr. Bell's patent on the subject being dated Nov. 17, 1852 (No. 772). C. R. A. WRIGHT, D.Sc.

PEAT FUEL.

Sir,—I send you an extract from an Irish paper, which has a very important bearing upon what may be called the Peat Question. The conclusion reached by the engineer of the Great Southern and Western Railway Company of Ireland, and which is, as you will see, now brought to a practical result at Inchicore, has been also adopted by several other consumers of peat fuel in Ireland. I have lately visited the works at Inchicore, and can add my testimony as to the truth of the statement of the results there developed. It would serve a very useful purpose in England, also, to circulate the fact that air-drying alone is the only really practical mode of treating peat deposits. An immense amount of capital is likely to be wasted here in experimenting upon complicated peat machinery. There is one caution that needs to be very strongly impressed upon the public—out of the hundreds of thousands of acres of bog land existing in this country, which some enthusiasts think is capable of producing marketable peat fuel, a very small proportion really is suitable. The immense deposits in Cheshire, Lancashire, the Eastern Counties, and elsewhere, are not really peat bogs, they are only mosses, as they are often locally called. They are, in fact, many ages too young to be used profitably as fuel. But in the higher and more mountainous parts of Wales many deposits of deep hard black bog are to be found, which almost equal coal in density, and which possess a power of combustion far superior to coal, burning away so completely as to leave only a residuum of ash of about 5 per cent. These deposits are not very common, but, depend upon it, they are the only ones which can be profitably worked now. I understand that in the course of the present year some of the produce of such peat deposits is likely to be brought into the market. I shall look for this with some interest. I consider that this matured substance, when air-dried, is far more agreeable to burn, and also more efficient, than coal, and it will be very much cheaper also.

May 26.

A CONSTANT READER.

PEAT FUEL AT INCHICORE WORKS.—At a meeting of the Council of the Royal Dublin Society, held on Thursday last—Sir Richard Griffith, Bart., in the chair. A highly important report from Dr. Reynolds was submitted on the value of peat as fuel, as used in Siemens' gas furnace. Dr. Reynolds stated that the application of Siemens' regenerative furnace to the economical combustion of rough air-dried peat in great manufacturing operations had proved highly successful in this country. He observed that, when drawing attention to the subject in a letter addressed to the Council at the commencement of the fuel famine, two years ago, theoretical considerations led him to the conclusion that Siemens' apparatus was best suited for the purpose. Since then the Great Southern and Western Railway, by the advice of their distinguished engineer, Mr. Alexander Macdonnell, have erected a Siemens' furnace at Inchicore. This furnace has now been two months in operation, rough and poor peat being the only fuel employed. Notwithstanding the bad quality of the turf used, the degree of heat obtained is so great that the melting point of steel can be easily reached. This furnace has hitherto been regularly employed in forging large quantities of iron at Inchicore; and Mr. Macdonnell decided that the quality of the iron turned out from the peat-fuel Siemens' furnace is superior to that forged in the common air furnace, fed with the best coal. Still more important is the remarkable result which has been arrived at by the engineer. It is that 5½ tons of rough turf suffice to forge 1 ton of iron in the Siemens' furnace, whereas 6 tons of good coal, or about 12 tons of good peat, must be burned in the common air furnace in order to produce the same

effect. Therefore, a manufacturer using a Siemens' furnace obtains rather more heating effect from 1 ton of peat, costing 12s., than another using only the air furnace can derive from 1 ton of coal at 25s. It is calculated that at least 3d. 10s. per ton of iron forged is saved at Inchicore by the use of Siemens' furnace, fed with peat. These are solid facts, which it is needless to comment upon, since they suggest their own conclusions in the most practical of all ways. Dr. Reynolds, in submitting them, expressed the hope that manufacturers will profit by the example of the Great Southern and Western Railway, and will utilise some of the immense power which the invaluable labours of Sir Richard Griffith have long since proved to be stored up in the peat bogs of this country. So far as manufacturers, at all events, are regarded, the results obtained at Inchicore leaves nothing to be proved respecting the vast economy of employing turf in the medium there in operation. The report of Dr. Reynolds opens, or ought to open, a large and profitable field both for peat manufacture and other industries in this country.—*Freeman's Journal*.

WALKER'S IMPROVEMENTS IN RAILWAYS AND ROLLING STOCK.

SIR,—I have read the several letters in the *Journal* respecting Mr. Walker's new mode of making and working railways. As an old practical mechanic I have taken great interest in the invention, and have seen the models repeatedly at work. It appears to me that the writers of those letters have overlooked one important particular of this invention—the effective system of stopping the train. Those models running up an incline of 1 in 10, when left to themselves, were stopped in a moment, so that were couplings to break, or an engine got short of steam, on an incline, the whole of the cars would remain stationary. This, to my mind, is a most important feature, among many others, of this remarkable invention; and when one hears every now and then of disastrous accidents for want of brake power, such as that lately at Merthyr, it is the duty of railway companies to adopt, or at least give a fair trial to, all the means brought forward for saving life and rolling stock. ENGINEER.

May 28.

KALOSIC GAS.

SIR,—Independent of my having no wish to prolong the correspondence upon Kalosic Gas, every moment of my leisure time will be absorbed in preparing for my report and evidence, ordered by the Select Committee of the House of Commons for next week. Nothing, therefore, but the necessity of positively contradicting one of Mr. Baggs' last assertions would have led me again to address you on this subject, notwithstanding Mr. Baggs' fresh figures, both of speech and scientific calculation, are palpably open to correction.

Taking refuge in round numbers, and still rounder asseverations, Mr. Baggs objects to the specific gravity of the carbonic oxide by which my estimates have been arrived at, and insinuates that I made use of an exceptional and unfair standard. I can only refer him to the Manual of Chemistry used at King's College, University College, and the great majority of chemical classes. I allude to the later editions of "Fownes," revised by Watts and Bence Jones, with the latter of whom I had the honour of association. My poor researches being so utterly unknown to Mr. Baggs, I might also enquire if he has ever heard of Stas, or of his work upon the Combining Weights of the Elements, which Prof. Roscoe, of Owen's College, declares to be "the most reliable and accurate determinations we now possess?" If Mr. Baggs had availed himself of the latest advances in the chemistry of gases he would probably have used the new and universally accepted erith, which would have somewhat modified his reference to Regnault. But what can be said of the accusation that I took advantage of fractions, when the smallest particle of candour would have forced the admission that his own standard utterly invalidates his statement of results. Gas can be measured and coke weighed with great accuracy at gasworks. Mr. Baggs might, therefore, be supposed to have had the means of affording tolerably correct quantities, but even using Mr. Baggs' standard, 29.99 grs. per 100 in. of carbonic oxide, it will be chemically and practically impossible to make nearly 220,000 ft. out of a ton of coke, so that the proportion of carbonic oxide to nitrogen shall be, as he says, as 1 to 2. This I again maintain, and for the last time, but I emphatically deny that I ever said it was impossible to mix these gases in that proportion—the difference between the two statements is obvious.

After the exhibition of volumetric chemistry (?) as expounded by Mr. Baggs, I may decline to take any further notice of anything he may advance, just as I now ignore mere impertinence of tone; but I shall always feel justified in exposing fallacies, and in reducing to their proper level such high-flown schemes as may present even the most attractive appearance. With regard to kalosic gas, it may be as well to remember that, according to the figures of the inventor, and calculations not disputed by him, it would not contain, even in his own favourite "round numbers," more than from 5 to 15 per cent. of the units of heat possessed by common coal gas.

Gray's Inn, May 25.

H. C. BARTLETT, F.C.S.

KALOSIC GAS.—No. V.

APPLIED TO RAISING STEAM.

SIR,—The introduction of every new invention is always destined to encounter a variety of objections, and the inventor may think himself fortunate if the product of his labour and perseverance be not pronounced to be altogether impracticable by some high and recognised authority, or some would-be savant, as the case may be. Up to the year 1774 the engineering world would not believe it possible that a vacuum could be produced in a hot cylinder. At the passing of the Liverpool and Manchester Railway Bill in 1829 the enlightened British Parliament scouted the bare idea that even with the aid of steam, and upon a railway, people could travel at a greater rate than 10 miles an hour.

The electric telegraph took the world by surprise, and that surprise had scarcely abated when the popular oracle declared that though it was certainly a most wonderful thing, yet it was a perfect farce to think of laying a submarine wire from Dover to Calais. Think of a ship dragging its anchors in a gale of wind; they run foul of the wire, and away it goes; this was the general idea. I remember the time when many distinguished men, with Dr. Lardner at their head, declared that it was impossible for a steam vessel to cross the Atlantic, because (of all things in the world) it could not carry coals enough for the voyage! But to come nearer home with our argument, it is perhaps within the memory of other than the oldest inhabitant that when the present system of gas-lighting was first introduced, the prejudice against it was overwhelming, and even such men as Sir Humphry Davy, Sir William Congreve, and Prof. Brande threatened the metropolis in the event of its adoption with the probability of a general and terrific explosion in the streets.

History has answered all these doubts, and fears, and impossibilities, and has, so far at least, swept away the cobwebs from the temple of sound judgment and experience; but prejudice still remains to nip and blast the coming buds of progress as they successively appear, and to offer a clumsy but ineffectual barrier to human advancement. So drags the heavy coach along. I should, therefore, not have been surprised if some formidable objections had been taken to my kalosic gas. But such has not been the case. The quantitative and economical statistics of the gas have excited a very general feeling of astonishment; but all those persons, including several eminent engineers, who have cared to enquire into the matter, and have patiently followed me in my demonstrations, have risen from the argument perfectly convinced of the truth of my statements as they have been unfolded in the columns of the *Mining Journal*. Still, there are some few points which require a passing notice. I have been told, for instance, that two-thirds of my gas is nitrogen, which from its very nature must have a most adverse influence upon flame. I grant the fact, but I altogether deny the inference. The nitrogen is a necessary part of the result. It was placed here by the hand of Nature; it is a constant component of that gaseous mixture which we call atmospheric air, of that vast and mobile aerial sea which envelopes the entire globe, not only, observe, for the respiration of man and of the animal world, and by an inverted process of the vegetable world also, but absolutely for the special and manifest purpose of making and maintaining the millions of fires, furnaces, and lights which are glowing everywhere over the earth's surface, as the primary and imperative adjuncts and condition of civilised life. Now, if this be the fact, and we know it is so, nitrogen cannot be a foe to the integrity of such flames as we are in the habit of using for all purposes of heat and light; therefore, that objection falls to the ground, for surely the poor opinion of man is not to be regarded as superior to the ordinations of Nature! Without wasting another word upon so trans-

parent a fallacy, I turn to a consideration of far greater importance—the true economical value of kalosic as compared with other gases, and especially hydrogen. This leads us to discuss, in precise and rigid terms, the specific value of the units of heat eliminated from the two bodies in the act of burning.

It may be stated, in a general way, that the heat unit adopted is the one proposed by Dulong—viz., the quantity of heat required to raise 1 gramme 1° centigrade, or, more exactly, from 0° centigrade to 1° centigrade. Very careful experiments have been made upon the subject by various authorities, more especially by Favre and Silbermann, by Andrews, and by Dulong, whose average results coincide very closely one with the other. Taking those of the former, Favre and Silbermann, we find that the units of heat given off from the combustion of carbon are 8080, while from an equal weight of hydrogen, they are 34,462. Now, as kalosic gas is made from carbon, and is, in fact, the result of its semi-combustion, it is not to be wondered at if some people, regarding the matter at its first blush, exclaim, "Halloo! Here's your kalosic gas, with only 8000 units of heat; and here, on the other hand, is hydrogen gas, with 34,000 units. Why, putting it to exact measurement, your kalosic is not a fifth part the value of the other!" Stop, not so fast! Let us see: *Something does not come of nothing.* Where do you get these 34,000° of heat you are talking about? They could not exist in the hydrogen before it was generated. They were conferred upon it at the moment of its formation. Then, where did they come from? The most simple method of generating hydrogen is by the decomposition of water at a red heat by means of iron. Now, the total number of units of heat given off by iron in combining with an equivalent of oxygen, according to Dulong, is 1702. This is not 34,462. Therefore they do not come from there.

The process of generation under these circumstances is obviously and in fact, a very cooling one, and to supply the necessary heat we burn (say) carbon outside the retort, tube, or receptacle in which the decomposition is conducted. But if we burn carbon we shall only get from an equal weight thereof, as just stated, 8080 units, which added to 1702 from the iron, only give us a total of 9782, so that in fact in order to get this grand result from hydrogen (this 34,462 units of heat), which is to beat kalosic gas and everything else, we must first burn outside the retort or other vehicle as many times the weight of carbon as will produce that number of units, which is making it in theory exactly as broad as it is long, and in practice a great deal worse, for the loss of heat involved in such a round-about process would be something enormous. It is the same in chemistry as in mechanics, and we may just as well get a steam-engine to wind up a weight, or a spring in order to do its work by recoil, as make hydrogen gas for its 34,000 units of heat.

I now pass on to another consideration. Public attention has lately been drawn to certain improvements in burning fuel when in the state of dust, and there is no doubt that a great economy can be realised in this way over the present expenditure of fuel if the mechanical arrangements for the purpose are as well and as carefully studied as I apprehend them to be. Still, if they are all that can be desired in this respect, it is impossible, from the very nature of things, that coal dust can ever compare with a cheap and permanent gas as a true combustible agent and general source of artificial heat. But why? Because in both cases the efficacy of the result is dependent on chemical action, and in the case of coal or coke dust, however fine that dust may be, we are not burning atoms, but material masses. But they are so small that you may say they are as good as atoms in effect. Yes! you may say so. You may say anything. But when we come to examine a little closer—to throw the lead a little deeper—we shall find that it is very far indeed from being the same thing. Let me illustrate the case. What is an atom? Take the case of gold. We know from experiments that 1-49th part of a single grain of gold may be divided into 4,900,000,000 fragments, each of which is visible under the microscope. And we know further—from circumstances attending the coating of silver wire, and from various chemical considerations, that we have not here even faintly approached the limits of divisibility. Now, in dealing with coal or coke dust we must bear in mind that the chemical action or burning which takes place in the furnace only occurs at what we term the points of contact of the combining atoms—that is, upon the surface only of the dust—and for a moment consider what an enormous subdivision of matter is necessary to produce a comparatively limited extension of surface.

Take a cubic inch of coal; it exposes six square inches of surface. Suppose it be now divided into a thousand smaller cubes, all of equal size. The surface has not thereby been increased a thousand times, but only ten times; and if the original, instead of being divided into a thousand inch cube, had been divided into a thousand million smaller cubes the increase of surface would only have been one thousand times, because, as is well known, the increase of surface is as the cube root only of the number representing the subdivision.

These facts point to the limitation of the principle. But I will go a step further. In Bovill's patent for grinding corn into flour it was found that before the cold air of London could be blown through the stones it was absolutely necessary to sift it, for it was too dirty to be used without. It was, therefore, all drawn through fine lawn sieves previous to use, and where it entered the meshes of the lawn the unconsumed fuel of the metropolis was deposited as an intangible black powder. Nothing could well be procured finer than this; and let us suppose, for argument's sake, that it was all the dust of coal, as it might have been, and that we collected 1 lb. weight of the dust and subjected it in a small retort to destructive distillation. We should have 4 or 5 cubic feet of coal gas produced, together with tar, carbonic acid, water, ammonia, sulphuretted hydrogen, naphthaline, anthracene, and numerous other hydro-carbons and compounds of one kind and another; these in their turn being composed of a great number of different elementary atoms variously disposed, and so we go on through the windings of a maze which appears to have no limit.

Observe that all these chemical results here named are the product of the united grains, or pieces of coal, taken together; and, therefore, as they are all alike in quality and composition, each one, however small it may be, contains or produces all the substances referred to, and holds all the multitude of atoms of which they are built. Now, you cannot mix air with these compound atoms and masses while they are thus bound up together as a complicated integrity, but you can do so with inflammable gas, and so produce the highest intensity of flame, the most complete control over combustion, and the utmost measure of economy consistent with the physical endowment of the atoms themselves. These are only some of my reasons for stating that mere fuel dust can never bear comparison with kalosic gas as a general heating agent.

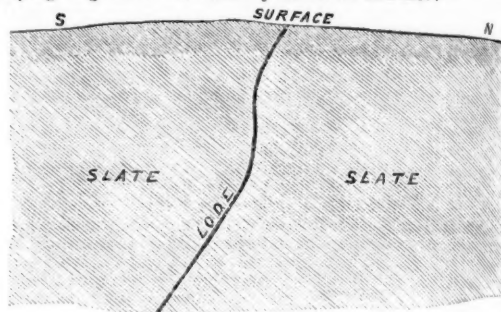
ISHAM BAGGS.

QUESTIONS ON PRACTICAL MINING.

SIR,—If no one read the *Mining Journal* but men of Mr. N. Ennor's stamp it would not so much matter what he wrote, but as it goes into every quarter of the civilised world, and its contents are critically scanned by intelligent mining men everywhere, it is much to be regretted that the English miner should be prejudiced in the estimation of foreigners by such gratuitous displays of ignorance as are made by him. If lodes of metallic minerals were known to be affected by polar magnetism, and it could be demonstrably shown that one set of veins were continuously parallel with the earth's axis throughout its extent from north to south, whilst other classes of veins were proved to be in the form of parabolic curves in conic sections, extending from surface to surface throughout the entire interior of the earth, from one hemisphere to the other, they would still be questions of no practical import to mining, but such as might serve to exercise the minds of children in preparing them for more useful studies. One scarcely knows amid such a mass of absurdities where to begin. To set about disposing of them *seriatim* would almost look like setting up a man of straw to knock him down again, so palpable are the absurdities it is intended to expose. If there is a single sentence of any practical value in Mr. Ennor's letter in the Supplement to last week's *Journal* I have failed to discover it, and I would most assuredly have given due prominence to such a sentence—if it contained one—from patriotic, if from no other motives. If the letter had been the product of anyone other

than Mr. Ennor I should be constrained to question the writer's earnestness in propounding such questions professedly for the enlightenment of practical mining men. That they serve to expose their author's ignorance cannot be doubted. To answer the question he has asked would undoubtedly produce that result, but how much better would others be made if he himself remains unaffected by it? He evidently flatters himself that he wonderfully enlightens mankind by asking them ridiculous questions in a general way, and takes credit to himself in doing so just as if he were actually exercised in imparting really useful knowledge.

The whole letter is a jumble of absurdities from beginning to end, so much so that it would seem to be equally absurd to attempt its correction. He first asks "How is it that one portion of an east and west lode dips north and another portion south in the same layer of rock?" and then immediately supplements that question by another—"And why do they cross the layer in its strongest way?" The manner of putting the first part of the question would lead to the inference that it is invariably the case that one part of an east and west lode dipped northerly, whilst another part dipped southerly, which is by no means the case. In the first place, a change in the dip of lodes is due entirely to a difference in the condition of the containing rocks, which may proceed from a variety of causes, an investigation of which would lead us back to those dark periods when chaos reigned, and when the materials of which the rocks are severally composed were in a plastic form from the action of heat, or in an uncompounded condition, such as silt, from the action of water. To the supplemental part of the question, "Why do east and west lodes, when dipping in opposite directions in the same stratified formation, cut the planes of its cleavage in both directions?" the answer is obvious. "Because it is impossible it could do otherwise." If the lines of stratification in the containing rocks are at an angle of even any degree differing from the plane of the lodes themselves, such stratified rocks must have their terminal planes in the adjacent fissures in which the veins are formed; and hence all lodes which are not in strictly parallel planes with the stratification of the containing rocks, no matter in what direction the lodes may dip, they will be oblique to and intersect such planes of stratification. The accompanying diagram will sufficiently illustrate this fact:—



This, though an absolutely childish question, is sensible in comparison with most of the others which follow. Take the following as an example:—"Then, I ask them about the angle that the north and south lodes dip east or west?" "Then, what depth would these lodes pass through the earth if found at or under the meridian or equator dipping south 23½°?" Was there ever anything more absurd! A man assuming to teach others who does not himself know that the equatorial and meridional lines are very different things, and situate transversely to each other. A north and south lode, forsooth, longitudinally corresponding with the equator, and as if this were not sufficiently absurd, corresponding also at the same time with meridional lines, which are essentially north and south lines, but made by him to dip south 23½°. He does not seem to be aware that this question involves a contradiction in terms. Again, he says—"I suppose a lode to back out 40° within the South Pole." Does he mean *within* or *without*? If within, I would thank him for some description of the region he refers to; but if without, to say whether he supposes it to back out in the South Atlantic Ocean, or in the South Pacific Ocean, or at Desolation Isle. Such veins naturally give one exalted ideas of the geography of our world, and equally exalted ideas of the extensive and varied knowledge of Mr. N. Ennor. But will the gentleman be good enough to tell us in what way an answer to the questions he has asked, supposing them to have been put in an intelligible form, could benefit mining. If he were competent to introduce some practically useful subject, or something theoretically feasible, and would himself enter upon its discussion in a spirit compatible with a desire to benefit himself and others, instead of assuming to be the dogmatic expounder of laws which he knows nothing about, and the pretender to an experience he has never acquired and does not possess, he would act a much more sensible and manly part, and possibly be instrumental in directing attention to subjects the contemplation and knowledge of which might be found of much value in aiding both theoretical and practical experience in mining.

He seems never to have been vividly impressed with the maxim that "example is better than precept," especially when the latter is sought to be applied by a series of misanthropic missiles, varied only by ill-tempered and childish fault-finding. If Mr. Ennor's knowledge and abilities were together equal to his cynicism he would undoubtedly be a much better man; and, ignorant as he is of things generally, he does not appear to be much better informed concerning himself. "Man know thyself" would be sage and appropriate advice tendered to him. PRACTICAL MINER.

MINERS' PAY—THE THIRTEEN-MONTHS SYSTEM.

SIR,—Much has been said and written on this subject, leaving, perhaps, but little of material interest to add, but a "Reader," dating from North Wales, whose remarks appeared in the *Mining Journal* of March 28, appears to be well acquainted with the working of the five-weeks month as it affects the operative miner, and we esteem it an especial privilege that the columns of the *Journal* are open to the employers and employed, believing that when established facts are brought forward in temperate language it is a good basis from which to argue for either side. A "Reader" mentions a case of able miners who have been unsuccessful in tribute, or speculation, and desirous of recovering themselves, or improving their finances, by a spell of tutwork, the earnings on this class of work being to some extent certain. But oh! he exclaims, what a prospect with nine weeks before getting a farthing, and another five-weeks month close at their heels, concluding with the hope that the hint might convince all those who are anxious to restore the five-weeks pay that it will be likely to deprive mining of many of its best workmen. And this view of a "Reader" is correct—that miners endure privations entailed by the uncertainty of their earnings, and the lengthened period which they have to wait in many instances for payment, to a degree but little known to the general body of shareholders. That miners occasionally contract debts imprudently is true, but in too many instances there is no other resource than "credit," the "parish," or "starvation," or such was the case a few years ago, but the miner's condition has been improved very much of late, and it is a pleasing fact that gentlemen holding heavy interests in extensive Cornish mines have been foremost in promoting the welfare of an industrious and deserving class of men.

But, as usual in the progress of reform, the leaders have to stand the attacks of puny traducers, and the more weighty arguments of those who in defence of the five-weeks system are acting (let us charitably hope) to the best of their belief right, at least in their own interests. "Unity," in the *Journal* of April 4, asserts that no argument that can be adduced can justify thirteen pence yearly, and the promoters of it cannot have the just interests of capitalists at heart, neither is it in the power of anyone honestly to prove it is a step in the right direction; but of one thing "Unity" is in great zeal, declares he is certain—that respectable mine agents are content to get the value of their services by twelve pence in the year. Without stooping to subterfuge, suggestive of unpleasant motives,

the thirteenth pay should be cheerfully abolished: it has been tried, and is justly to be "hated and detested." But why this waste of words? Can "Unity," "Auditor," or any other man, make it appear that miners are paid for four weeks in the twelve months unless they render an equivalent of four weeks work in return? If not, then, to use the very mildest term applicable to the subject under consideration, it is very questionable honesty indeed which favours an attempt at filching four weeks' toil from miners, or any other class, without fair remuneration; and the best apparent course for those who cannot make their mines pay without wronging the miner from of four weeks' pay in the course of a year, is to withdraw from mining altogether. Is it possible that any man conversant with Cornish mining, be he "Agent," "Auditor," "Surveyor," "Readers of the Mining Journal," or that precious pair of prattlers "Agent" and "John," can condemn the four-weeks system, from personal experience of the very serious evils entailed on the patient miner by the five-weeks term? Doubtful. As a body we are not Unionists, but admit the rights of capital to a fair interest on investment, and so far as the speculative nature of mining will admit, and in seasons of depression willing to bear a share of the general burthen, and more especially when reasonable employers, in prosperous times, have without pressure conceded to us not only the boon of payment every fourth week, but also a fair day's wage for a fair day's work, leaving us without a motive for joining the "amalgamated societies" when we are treated fairly.

In your report from Cornwall of April 4 it is stated that the labour question had assumed a new phase in relation to the five-weeks month or pay, and the remark is to the point that some modification in the accounts appear necessary, and provision made for apportioning the thirteenth month's cost, instead of lumping it, whilst "Readers of the Mining Journal," same date, could name mines already stopped by the system (four-weeks), and others will follow! But it is questionable if any particular method of payment has been fatal to those mines referred to by "Readers." The chief difficulty with them appears to consist in having any payments to make at all; and it is within the recollection of many readers of the Journal that the Fortescue and another shallow tin mine were highly extolled by certain writers as to the wonderful prospects for tin at a moderate depth. Results show that any mode of payment would have been inconvenient for the mines in question, and afford tolerably clear evidence that it was not the four-weeks pay which affected these undertakings so seriously as lack of returns.

It is a consummation devoutly to be wished that other mines which have shared the unmeasured praise of these concerns, and from the same source, will be exempt for many years from figuring with the F. and T. in the Court so well known as a county institution. This, at least, being the hope of many—A MINER.

Norway, May 15.

MINERS' PAY—THE THIRTEEN-MONTHS SYSTEM.

Sir,—With regard to Capt. Rowe's report upon the Gawn Copper Mine I would say that although some work is going on most of the old miners are idle, being on strike for the pay-day to be every four weeks. There are now 18 miners not working because he has returned to the old system of making only twelve pence in the year. He is determined to have the occasional five-weeks month, and we are equally determined that it shall not be so. Why should a man get his pay nine weeks instead of eight weeks after it is earned? I, with every other commonsense individual, ignore the thing altogether. The only reason that the Captain has got on as well as he has done is because he has employed quite young men, and many more boys of 13 or 14 years old. By this means he dares all Acts of Parliament and ignores miners, smiths, and every other trade. There is no part of Great Britain in which any but metalliferous miners are paid upon such a diabolical system, and I trust we may be saved from having to submit to it by your making our feelings known through the medium of the Mining Journal circulation.

Bristol, May 23.

E. SOBEY, Secretary.

SAVING OF FINE TIN.

Sir,—I wish to draw the attention of mine captains and managers to a mode of saving fine tin by a simple and cheap process. It is by having what is called a sluice box. The box is small, about 20 or 30 ft. wide, with sides and end 1 ft. deep, the bottom end 6 in. put in to an angle of 8°. The discharge slimes and water from nine stamps to be left to come in at the top in a launder. This sluice-box to be paved with coke and bricks, or small stones, alternately. The coke being porous will receive the fine tin, and also settle between the coke and the bricks or stones. After a certain time of working the paving is all taken up, and thoroughly washed in clean water, and the box cleaned up and paved in as before. This is a cheap and easy thing to lay down in the tin mines of Cornwall, as the fine tin is washed away by too much water. These boxes can be laid down at different places on the tin-floors in many mines. The chief object in view generally is to erect machinery to save manual labour by driving by steam or water-wheels; but I have drawn this simple plan to show the saving of both, hoping that my remarks will fall to the notice of some of your readers, so as to put it in practice, and before long we may have the pleasure of reading of its success.

Dolgelly, May 26.

J. C.

BAMPFYLDE MINING COMPANY.

Sir,—Being one evening last week at the South Molton Railway Station with two or three hours to spare, and seeing some trucks of ore brought there by a traction-engine, I thought I would go on to the mine (the Bampfylde) and see what they were doing. Accordingly I walked on to North Molton, and from thence to a village called Heasley Mill, or some such name, lying quite in the valley. When there I was directed to the house of the manager, Mr. S. Mitchell. Though quite late, on telling him my wishes, he at once kindly started off with me, taking me to the head of their new tramway, now just being completed, and showing me there a splendid heap of ore—iron and manganese—ready for removal, telling me at the same time that they had a larger parcel two miles from that point, which was being removed by the traction-engine, and which he would show me if I would come the following day. I am not writing this account for the purpose of puffing the Bampfylde Mine, but because some week or two ago I said a letter in the Journal saying if the Bampfylde Company have the quantity of ore at surface they say they have why do they not sell it? This letter, I dare say, may have caused some unpleasant feelings to many shareholders who may have read it, and I write, therefore, to advise any such to pay a personal visit to the mine and judge for themselves. The reason why the company have not sold their ores has hitherto, I presume, been the difficulty they have had of getting their ores away, but now they have a traction-engine and a tramway so nearly completed (all but a small part to be ballasted) I see no earthly reason why the Bampfylde Mine, if the shareholders see their affairs fairly carried out, should not be a good paying concern. I believe in their obliging manager they have a most energetic, hardworking, and efficient man, one who has done everything to prove the mine and advance their interests. I would strongly recommend the shareholders to take the proper steps and get their affairs so managed that the Bampfylde shares be quoted on the Stock Exchange. And I feel sure with bona fide management the Bampfylde Mine (despite all that may have been written against it for the purpose, as I now believe it has been, of gratifying personal spite) will become one of the best paying mines of the present.

SOUTH ROMAN GRAVELS MINE.

Sir,—Some months ago I was induced to buy some shares in the above-named mine, on the representations made to me that the Roman lode would be intersected by a cross-cut being driven through this set. But, after a long and expensive course of operations, there now seems to be great doubt as to whether the Roman lode does really pass through the set. The Shelfield portion appears to turn out capital, and as yet tedious and costly exertions the directors had to ask for fresh capital, and as yet nothing satisfactory has been accomplished. Now, seeing that expect substantial returns—have proved failures, where next, I would ask, are the hopes of the directors centred? Early in this year we were informed that a larger time I cannot learn that such an engine has been erected, but up to that time nothing but a more energetic management will save this property from the Old Bathons. That these young and promising mines should thus collapse one after the other is a sad sign of the times. I trust that the Mining Journal, which has done so much good service in pointing out the errors and abuses of Cornish mine management, will use its powerful influence in exhorting the directors and managers of the South Roman Gravels Mine to more vigorous action.

A LONDON SHAREHOLDER.

TECOMA AND FLAGSTAFF COMPANIES.

Sir,—It is high time that we shareholders knew something of what the new directors are doing since the meetings held nearly a month ago. Both companies are trying to raise new capital, and the new boards have both fully admitted, in the speeches of their Chairmen, Mr. Burnard and Mr. White, that the future of the companies is dependant on getting Mr. Davis to carry out the agreements he made with the old directors, and for making which they have been exposed to the most unmeasured abuse. We were told at the meetings that deputations were going over to Paris to try and arrange with Mr. Davis, and I hear they had come back more than a week ago. What have they done? Shareholders ask at the offices, meet the deputations, but they know nothing. Boards have been held to no purpose. This does not look favourable. I fear it means new directors, and, above all, by Mr. Burnard, the Chairman of the Tecoma, and a director of the Flagstaff. I heard him myself speak of Mr. Davis in public

meeting in a way which any man of spirit must resent, and I have little doubt that Mr. Davis will resent it, and refuse to carry on the companies. Why should he? His own interest is to take possession of what he knows to be good properties. And where are we then? Another thing is—"Have the shareholders responded to the appeal for a new capital or not?" The question was asked at the Tecoma meeting on May 5, and the Journal of May 5 gives the answer as quite a vague one. Mr. Cremonini was named a new director; he refused to act, and said it was idle to suppose that new capital could be raised. I fear he is right; at all events, we ought to know what is doing. The old directors were blamed, and justly so, for their reticence. Are the new men going to follow them in this, as in other things? May 28.

A SHAREHOLDER IN BOTH COMPANIES.

THE SWANSEA VALLEY STEAM COLLIERIES COMPANY.

Sir,—To controvert an opinion now generally obtaining that all collieries are dead letters, permit me to draw your attention to the position and prospects of the Swansea Valley Steam Collieries Company (Limited), brought out privately by Mr. Warwick, of 25, Bucklersbury, and Swansea. Already, after working some three months, a meeting has been called, and a dividend declared at the rate of 15 per cent. per annum. This result has been attained in spite of two strikes, and the occurrence of other difficulties, yet by the energy and ability displayed by the direction, coupled with the resources of the colliery, the foregoing substantial benefit has accrued to the shareholders, who may anticipate not only a continuance but an augmentation of their initial success, in the face of an increase in the output about being established, and an extension of sales effected among a growing connection in France, Ireland, and England. And I have much pleasure in acquainting you with these facts in order to show that some collieries, well chosen and ably conducted—as is this one—do and will pay, and pay well.

A SHAREHOLDER.

[For remainder of Original Correspondence, see to-day's Journal.]

Meetings of Public Companies.

JAVALI COMPANY.

An extraordinary general meeting of shareholders was held at the Cannon-street Hotel, on Tuesday, for the purpose of receiving a statement from Capt. Sohns, the resident manager, on the present position of the company's property, and for the transaction of general business. Mr. E. SCHUBERT (the secretary) read the notice convening the meeting.

The CHAIRMAN said that, in addition to the object set forth in the notice, the present meeting had been rendered necessary by the death of Mr. Hall, upon whose financial aid the existence of the company had so long mainly depended. Had it not been for Mr. Hall, and his readiness to provide money for carrying on the company, operations must have stopped two or three years since. Appeals had been made more than once to the shareholders for funds to send out increased machinery, but during the last three years the means for carrying on the works had been provided entirely by their late Chairman. There had been complaints made of want of success, but when it was considered that all had rested upon one man's shoulders it was not to be wondered at that there had been deficiencies, the wonder rather being that one individual would alone bear the brunt and burden of carrying on the company. The position in which they now found themselves was this—an indebtedness to Mr. Hall's estate of nearly 80,000l.; it showed the faith Mr. Hall had in the company that he was willing to carry it on by his own unaided efforts to that extent, because Mr. Hall was eminently shrewd, and capable of taking care of himself. It was not surprising that Mr. Hall's executors, under his will, had called upon the company to make provision to meet that indebtedness; they were, however, willing to put the company to as little inconvenience as possible, but at the same time desired that some settlement should be made for the amount due to the estate. Within the last few weeks a meeting was convened to authorise the directors to raise 20,000l. upon such terms as the directors should deem expedient, and the resolution passed at the meeting was very much at the instance of the late Mr. Hall; there was very little doubt it had been his intention to see by what means that resolution could be best carried out. Acting upon a suggestion made, a circular was sent out to the shareholders, asking them to subscribe for debentures, which met with no response whatever; but now what the board was practically authorised to consider was this—Mr. Hall's executors would, he had very little doubt, under certain conditions accept these 7 per cent. debentures in payment of the debt; therefore, he took it, if the shareholders were wise they would accept those conditions, which he could not but consider a very handsome offer. The conditions were that the body of shareholders would provide sufficient means to enable Capt. Sohns to return to the property in two or three months and realise the results indicated in his report, which he would presently read—in other words, to ensure the success of the company. Capt. Sohns asks for 30,000l., but to meet every engagement 50,000l. should be raised. If the shareholders would provide that the directors had very little doubt Mr. Hall's executors would accept in debentures the whole of the amount due to them from the company, and at the same time Capt. Sohns would be able to provide the additional machinery he asks for, and to forward home such remittances as would put the company fairly upon its legs. The great expenditure of something like 30,000l. had been incurred under a former management, and seeing the results Capt. Sohns had realised upon a small outlay shareholders were certainly encouraged to provide this additional capital, as thereby there were promises of highly remunerative results. St. John del Rey stock was now selling at 150 per cent. premium—that mine did not pay a dividend for 12 years, but this company had existed only 6½ years; the St. John del Rey paid enormous dividends upon a smaller average percentage of gold than that at Javali. Personally, he was not in any way discouraged with Javali, nor were his colleagues, but they could not go on without the sines of war. They pinned their faith upon Capt. Sohns's promises, believing that before 12 months had elapsed, if the shareholders were not receiving dividends, the returns would be more than sufficient to pay all the debentures, and that the following year good dividends would be paid. Before reading Capt. Sohns' report he might mention that since his arrival in this country he had purchased 300 shares. He then read the report, as follows:—

One year ago I had the pleasure to hand you a general report of the working of your property in Nicaragua during the year 1871-2. I now beg to submit to you a report respecting last year's working, by which you will observe that our 20 stamps have worked during the year 1873. Working only 136 days, they crushed 8993 tons of ore, yielding 3198½ ozs. of smelted gold, making an average of 7 dwts. 4½ grs. per ton. The quality of the quartz has improved 6 grs. per ton, as compared with the two previous years. The stamps have only worked 136 days for several reasons:—First, the stamp-shoes arrived too late, and I was obliged to stop the mill for a short time; secondly, the dry season set in very early, and was unusually long one, commencing Feb. 15, instead of perhaps in the middle of March, and lasting up to July 4, instead of to June 14, causing a month longer dry season; thirdly, in the month of October, in consequence of a revolution in the country, my native labourers were pressed for soldiers, which caused me to come to an entire stop for six weeks. The result of 1873 is, nevertheless, better than any before, and gives another proof that the mine is a rich and valuable property, and I confirm all my previous reports.—New Buildings: I have erected the steam-engine, which is at work this dry season of 1874. I am sorry to say that I only received a 10-horse power engine instead of a 30. I have all the necessary articles ready for the erection of 18 more stamps so soon as I receive more foreign labour, which is another difficulty with me. The expenditure at the mine for the year has been 7149l. 14s. 10d. The net proceeds of gold, after deducting freight, insurance, and assay, was 7483l. 19s. 6d., showing a profit of 334l. 4s., but of the expenses 1690l. 16s. 5d. were spent entirely on capital account for the erection of works, freight, &c., which, if added to the 334l. 4s. actual profit, makes that profit 2055l., made in 136 days, and with only 20 stamps at work. As we have already paid the freight for the new stamps and duplicates for various kinds of machinery that we wanted for our buildings, and as these are built of the best material, they will last a long time, so that in future we shall have no outlay only for the actual working of the mine, and the expenditure, therefore, will be small. This year we shall, no doubt, make a handsome profit. I have already stated that we are able to work the mill during the dry season, and even with the small engine sent out and by working only half our stamps. The yield of gold up to March 31 has increased 234½ ozs. as compared with last year, and the remittances will be continuous. As soon as the rainy season sets in the return of gold will be more than doubled; but I, as manager at the mine, and as a large shareholder in the company, now that I have given you proof of the richness of the property, think it is not right to lose any more time, but to put our mine in such a position that it can return the large profits I have pointed out in all my general reports, and which were made out from facts already obtained. To do this, allow me to propose to you to subscribe money sufficient to carry out the following plans:—First, to provide a 35-horse power portable engine to drive the whole of our machinery during the dry season—1200l.; secondly, for sending out more foreign labour, so as to make me independent in time of revolution, 500l.; thirdly, an incline with a double line of rails direct from the auriferous deposits to the mill, 750l.; fourthly, for completing the 18 stamps, assay furnaces, &c., 400l.; and fifthly, for contingencies, 150l.; Total, 3000l. After

the erection of these works, I have not the slightest doubt that our property will return large profits, and our company prove one of the best mining enterprises of the present day.—H. SOHNS.

The CHAIRMAN said what the board asked was this:—In round numbers they wanted 50,000l., which would be provided if shareholders would subscribe at the rate of 2s. per share; if the shareholders would subscribe for these 7 per cent. debentures in that proportion, Mr. Hall's executors would, he had every reason to believe, be ready to accept the whole of their claim upon the company, to the extent of nearly 80,000l., in the same class of security. Upon the success of the issue, after this additional machinery had been provided, Capt. Sohns was prepared to stake his character and his mining reputation. The board would do their part, and he had no doubt more than that. All he, in conclusion, could say was, that the future of the company was now in the hands of the shareholders.

Capt. SOHNS said the company possessed a rich and good property. The difficulties in such a country were very great, but he was glad to say most of them had now been overcome. They now possessed the best mining machinery, with 20 stamps, Blake's stone-breaker, and everything complete. He proposed to introduce Chinese labour, and if he were supplied with the money mentioned in his report he would be able to return the profits indicated in the general report he wrote in 1872 and 1873.

A SHAREHOLDER: What about the duration of the mine? Capt. SOHNS: All depends upon the number of stamps; with 38 stamps the ore already laid open could not be worked out in 50 years; the vein was in places 20 to 25 yards wide, and the ore disclosed could not be less than 500,000 tons, and the bottom yet unreached. The dead, or bottom, ground when reached would be the richest; the yield is now from 7 dwts. up to 1 oz., and its value about 58s. per ounce. During his management there had been returned 14,000 ozs., of the value of 32,000l. He had surveyed the whole mine, and discovered, last year, by means of explorations, two important branches of the lode, which produced exactly the same character of ore as that formerly worked; these two branches held to surface. He could have made a profit, but thought it better first to improve the property, but if he were provided with the money he now asked for, by which he could provide 30 stamps and an engine to work the whole of the stamping power, he could make a return of 23,000l. to 25,000l. a year, leaving a net profit of 12,000l. to 15,000l. a year.

After some further discussion, it was unanimously resolved, upon the proposition of the CHAIRMAN, seconded by Mr. WILSON, that the meeting, having heard the statement of the company affairs, and Capt. Sohns' report, concurs in raising the additional capital, and pledges itself towards raising it.

A vote of thanks to the Chairman and directors concluded the proceedings.

YORK PENINSULA MINING COMPANY.

The annual meeting of shareholders was held at the London Tavern, on Thursday.—Mr. F. P. WARD in the chair.

Mr. GRAINGER (the secretary) having read the notice convening the meeting, the report of the directors was taken as read; it states, *inter alia*, that—

"The properties of the company consist of:—
1.—The Kurilla Mine Acres 160 Engines, machinery, &c.
2.—The Duryea Mine 80 Engine, machinery, &c.
3.—The Bon Accord freehold property and mine 347 Engine, machinery, &c.
4.—Freehold land, near to and held in connection with the above No. 3 356
5.—The township of Aberdeen laid out in No. 3, with the terminus of the railway from Adelaide in the centre of it (75 acres) 923 Acres.

In the last report a complete description of these several properties, including the extent and result of all operations which had been executed at the Kurilla Mine up to the beginning of last year, was given to the shareholders. Since that was done the directors caused the Bon Accord property to be carefully examined by Capt. Robert Sanders, a resident manager of the adjoining Barra Barra Mine, and they issued on the 24th ult. a circular, together with a copy of his special report thereon, with relative plan. (These were inserted in the Mining Journal of the 26th ult. and 3d inst.)

With the very limited amount of funds at the command of the board, supplemented by the proceeds of ore raised (chiefly by tributes), the operations at the mine were continued until the beginning of September last, since which time they have been suspended. During that continuance, however, the 10 fm. level was carried 14 fms., the 15 fm. level 22 fms., and the 25 fm. level 22 fms. further west of Deeble's shaft, and making the extent of those levels 19, 57, and 61 fms. west of that shaft respectively, while during the prosecution of that work 255 tons of additional ore were raised, realising, after deducting royalty, 1140l. 8s. 10d.

The shareholders will not fail to have observed from the various reports and plans that have been issued by the board that the company possess very important promising properties, partially developed, and only requiring the application of a moderate amount of money to attain productive and remunerative results in working them. When capital shall have been provided in the manner proposed for that purpose it is the intention of the board to confine operations to the Kurilla alone in the bottom of the 25 fm. level, of which mine there is a run of ore laid bare for 20 fms., but which cannot be raised without further sinking, working it vigorously, and leasing the Bon Accord property, adjoining the Barra Barra, for future consideration, and which, if not worked by the company may, no doubt, be sold or leased on a royalty, to be worked by other parties. Capt. Anthony distinctly assures the directors that the favourable opinion he has continuously expressed regarding the Kurilla is in no respect changed; on the contrary, that it has been confirmed by all the operations which he has conducted there, and that he believes it, on the whole, to be the best and most promising undeveloped mining property in its locality, which, being also the locality of the Wallaroo and Moonta Mines, is known to be one of almost unprecedented mineral productiveness.

Good progress has been made with the Aberdeen township. Besides the portion occupied by the railway terminus, 67 allotments have been disposed of for building purposes.

Since operations were suspended at the Kurilla Mine expenses have been kept at the lowest minimum, and the directors have taken no payment or remuneration; and the accounts show that up to Dec. 31 last the ore raised from the mine had realised to the company 5411l. 18s. 7d.

The CHAIRMAN, after addressing a few observations to the meeting on the position and prospects of the company, thought it better that they should confine their attention to the business usually transacted at the annual meeting, and that he should be allowed to reserve what he had to say of a more specific character until the special meeting, to be held immediately after the present proceedings were concluded; he moved, therefore, that the report and accounts of the directors be received and adopted, which was seconded by Mr. GEORGE SMITH, and carried unanimously.

Mr. Frederick Peterson Ward and Mr. George Smith were re-elected directors, and Mr. W. B. C. Maxwell was re-elected an auditor of the company.

The CHAIRMAN: The auditors, I should state, like the directors, are content to receive no remuneration until the company shall be placed in an improved position—that is to say, until it shall be able to pay the shareholders a dividend.

The meeting was then made special, for the purpose of creating preference shares.

The CHAIRMAN: We are now to consider ourselves as met to hold a special general meeting of the company, which has been duly convened.

The SECRETARY having read the notice convening the same,

The CHAIRMAN said: As you have just heard, gentlemen, the object of this meeting is to create a certain number of preference shares, with which to pay off the limited amount of debentures (and accrued interest) issued by the company; and with the remainder of such shares not required for that purpose to provide some working capital further to develop the Kurilla Mine, and do our best to make it a productive, paying property. And if we can do that, gentlemen, as I think there are good grounds for confidently expecting we shall do, I see no reason why we should not be able to pay the dividend on the proposed preference shares, and, at all events, a moderate return on the ordinary shares of the company. You possess, gentlemen, we confidently believe, in the Kurilla Mine a very promising mining property. In the most promising part of the mine we have sunk that a portion of the depth of 25 fms. only. In the course of our operations a considerable quantity of good ore has been raised and sold. The lode was a good one in the 10 fm. level, in the 15 it had much improved, and in the 25 it is found to be much more so. Along the bottom of the 25 a run of ore is seen to exist for 20 fms., or 40 yards, in length, but we cannot sink deeper, in order to get under and raise the ore, without increased engine power; and to procure that we have not, as you know, at present at command the necessary money. I will read to you a few extracts from the reports of Captain Anthony, our mining captain at the Kurilla; and his views, I should state, are confirmed by the management of the Wallaroo and the Moonta Mines, as well as by Mr. John Darlington, the London manager of the Barra Barra, and others, and that, of course, after their personal examination of the Kurilla Mine. Capt. Anthony thus reports:—

"The development of the mine, both east of Hall's shaft, in the 45 and 35 fathom levels, and west of Deeble's shaft, in the 25 and 15 fm. levels, goes to prove that the lode holds its way in both these directions without any signs of decline; also, that there is every reason to expect greater improvement in depth, and of such character as will yet render it a paying mine. * * * It must, however, be borne in mind that it is not possible to bring the property into a profitable condition on such small outlay for working expenses. * * * In the most promising part of the lode, in the 25 fm. level, west of Deeble's shaft, was found in the bottom of that level, from which the water is not yet drained, nor can be until Deeble's shaft is deepened, or a new one sunk further west. * * * It is almost always the case that between the uppermost or first deposit of ore and the next deeper deposit there is a worth less intervening space; indeed, it is not singular to find this repeated a considerable number of times, according to depth and peculiarity of the vein. The ore discovered by me in Deeble's shaft was not the first of the series, but the second. The first deposit was found close to the surface, in and under the limestone crust, and was very short—hardly 10 feet in length. Below this the lode was poor for about 7 fms., but, as you are aware, when we came on the second deposit in Deeble's shaft it held good for about 6 fms. in length and 5 fms. in depth. * * * You are also aware that a portion of this shaft was worth 100l. per fathom. * * * In driving the 25 fathom level it would appear that we are just on the top of the third deposit of the series; in other words, the first deposit was 10 ft., the second 30 feet, and the third 90 ft. long. The importance of these facts must be patent to all. * * * Allowing for the uncertainty attending mining enterprise in every country, I do not hesitate to state the future of this property is settled, if a fair monthly sum were to be expended on it, a considerable portion of which, after the first eight months, would be met by sales of ore.—March 24, 1873: To abandon the undertaking after tracing so fine a lode so far west, and into mica claystone (the ore bearing rock of this

locality, should not be entertained for a moment. The parallel lode recently found in the Devon Consols Mine is exceedingly rich at a depth of 15 fms. from the surface. There can be no doubt that we are in the midst of great mineral wealth, and shall have our turn by-and-by.—April 18, 1873: I am not less hopeful than formerly of good results, if the board are successful in raising the necessary capital.—May 19, 1873: I may say that the further extension of the lode westward, carrying ore all the way, can but strengthen the high opinion held of this property by all who know it.—June 13, 1873: Since my last monthly report I have driven the 10 fm. level west of Deebie's shaft, on the north wall of the lode, about 7 fms. The wall has been well defined and regular all the way, showing that we had not, in any of the former workings fully ascertained the width of the lode, which is now proved to be over 20 ft. in width. The vein in this wall has hardly been destitute of ore for the whole distance, but being narrow the yield of saving ore is small. This drive gives us some idea of what may naturally be expected from so wide a lode at the deep levels when they are reached. I need not inform you that our operations are limited, but I have been able, with the very small means at command, to collect from the back of the 25 fathom level, east of Hall's and west of Deebie's shafts, about 30 tons of ore, which is now being dressed for the smelting works. This confirms what I have before stated, that, with a full supply of men and adequate means, it would not be a difficult matter to pay the cost of the mine, even now. I consider that lying, as the Kurilla does, between the Wallaroo and the Devon Consols on the north, and the Doon on the south, it is the most valuable property in this locality.

Then, gentlemen, we possess the Duryea, a section of 80 acres adjoining the Kurilla, which is a mine that was partially opened up by other parties a considerable time ago. It has an engine and buildings of its own. It was acquired by this company for a very small sum of money, and it may be worked along with the Kurilla or separately. It is considered, however, that the Kurilla and Duryea will prove to be of great advantage to each other, and should be held and worked by the same proprietors. We, however, for a time propose to confine our operations exclusively to the Kurilla. As regards the Bon Accord property. This property, which is freshhold, consists of 447 acres, together with 336 acres of other contiguous freshhold land held in connection with it, and as you know is only separated by an imaginary line from the Burra Burra property. The workings in the latter during the last year or two have been throwing much important light upon our Bon Accord property. I hold in my hand a report (and relative plan) on the latter, which we have lately received from Capt. Robert Sanders, the mining captain of the Burra Burra. He writes:—"I believe there exists a very strong cross-course in the Burra Creek, as, when you were keeping the water at the 50 fathom level at your engine shaft, the water stood in the shaft to the north of the creek in your property within 15 fms. of the surface. I believe, also, that between these two cross courses there is a deep depression, or downthrow, so that deposits of ore will not be found near the surface, but that to the north of the creek deposits of ore will be found at a shallower depth. Taking a view of your property in all its features and bearings in connection with the Burra lode, and the fact of the existence of cross courses traversing the same, I do not hesitate to affirm, as my firm belief, that you have all the features and elements of a profitable and lasting mine. I can, therefore, conscientiously recommend it as above ordinary speculations." The Bon Accord property is, therefore, a very important and promising property, but for obvious reasons the board have no present intention of proposing that it should be immediately dealt with in any way. The workings in the Burra will continue to throw additional light on the Bon Accord; and, if not able or not disposed to work it ourselves, it will always be in our power to dispose of it, or lease it to be worked on a royalty by others. Then, as regards the Township of Aberdeen, extending over 75 acres, and laid out upon the Bon Accord property. This township promises well to become an important asset to the company. The terminus at the railway from Adelaide occupies about 16 acres in the centre of it. It is so situated that most of the traffic coming down from the north-eastern side of the colony will converge at or pass through Aberdeen. There is ample space to extend the present township, and excellent sites for building on the slopes of the more elevated parts of the property surrounding it. Good progress has been made in the disposal of allotments in the township, and (besides that occupied by the railway) 57 allotments have been sold, and houses and other buildings are being erected on them. The amounts received for such allotments have not been expended, but accumulated. Altogether this is an asset of the company which may be regarded as in a very satisfactory position. I am glad to be able to state that very nearly all the debenture holders have agreed to take payment of the amounts of their debentures and interest in preference shares, and that, with the very small number of them who from any cause may be unable or unwilling to do so, I have no doubt we shall be able to arrange matters otherwise. I am also pleased to state that a considerable number of the shares which will be available for allotment, after assigning to the debenture holders those to which they will be entitled in exchange for their debentures, have been applied for, and that, in several applications, have been received. I will now submit the resolutions which have been prepared, having for their object the creation of the preference shares.

The SECRETARY having read them, they were proposed to the meeting by the CHAIRMAN, seconded by Major H. J. J. SHARP, and carried unanimously, as follows:

- 1.—That 40,000 guaranteed preference shares of the company of 10s. sterling each be and hereby are created, such guarantee to consist of and possess the following privileges, viz.:—
 - (a) A fixed preferential dividend of 15 per cent. per annum: the dividend for any year to be payable out of the profits of such year succeeding year or years.
 - (b) The right to an equal *pro rata* participation with the holders of the ordinary shares of the company in profits remaining after payment of the said fixed preferential dividend.
 - (c) The par value of the said shares, as well as any arrears of the said preferential dividend that may accrue, to be repayable out of the entire assets of the company in preference and priority to any distribution of the realised value of such assets to the holders of the said ordinary shares of the company.
- 2.—That such a number of the said preference shares as shall, in the first instance, be set apart for and delivered to the holders of the company's debentures, as shall be sufficient to pay them the full amount of their debentures and all interest due thereon up to allotment, any part of 10s. being paid in cash by the allottees; and the directors shall be at liberty to issue such shares in exchange for debentures, which on such exchange shall be taken to be of the value in money of the principal sums and interest owing thereon.
- 3.—That as respects the remainder of the said 40,000 guaranteed preference shares, all applications for allotments of them made by holders of debentures shall have a preference over all other applications; and that all applications made for them by holders of the said ordinary shares of the company shall have a preference over applications which may be made by the public.
- 4.—That payment for the said preference shares shall be made as follows (except in cases of such shares delivered in payment of debentures at 10s. and interest)—on allotment 5s. per share, and the balance in calls—one of 10s. and another of 5s. per share, as the directors may find to be expedient and necessary, but so that there shall be an interval of not less than one month between each payment, 21 days' notice being given of every call; but, if desired, the full amount may be so paid up at once, and shares so fully paid-up shall participate to their full amount in all the privileges attaching thereto from the date of payment.
- 5.—That dividend on the said preference shares shall begin to accrue from the date of payment therefor, or in case of such shares delivered in payment of debentures and interest from the date of the allotment, when the interest on such debentures shall cease.

Mr. THOMAS PALMER: I observe by the accounts that there are fees in arrears to the directors. I should like to ask whether, when the proposed capital is subscribed payment of that amount will be taken?

The CHAIRMAN: Certainly not, there is no such intention. The board will not take remuneration until a dividend be paid.

Mr. PALMER: I anticipated, Sir, what your answer would be; it is perfectly satisfactory, but I wished to be assured on the point.

On the motion of Mr. H. RITCHIE, a cordial vote of thanks was passed to the Chairman and directors, and the Chairman replied, and expressed his hope that the debentureholders and shareholders generally would support the board in their efforts by taking up the preference shares, which would now forthwith be formally offered to them.—The proceedings then terminated.

BRAZILIAN CONSOLS GOLD MINING COMPANY.

The annual meeting of shareholders was held at the offices of the company, King-street, Cheapside, on Wednesday.

The Hon. FRED. WALPOLE, M.P., in the chair.

The CHAIRMAN stated that their agents, Messrs. Martin and Collett, reached the mines on Nov. 29. The directors had previously obtained full legal possession of the rich lodes and valuable auriferous deposits at Rumao, Macacos, Matto Matto, and Capita Simão, together with 6400 acres of freshhold land in the vicinity of Mariana, Minas Geraes; that some time had been spent in organising their staff, in repairing the buildings and stamping mill, and removing a large quantity of loose earth and debris which had covered the lodes and choked up the water-courses; that upwards of 25,000 lbs. of gold had been obtained from about 50 to 60 tons of surface washings and small leaders; and that the last reports from Capt. Martin were the most favourable yet received. The Chairman stated further that he and his brother directors had the greatest confidence in the intrinsic value of the property, and that it only required capital to develop the same. Their balance-sheet would show how economical they had been, and that hitherto they had not taken any fees whatever for their time and trouble. The purchase of the property, including every preliminary expense and loss on exchange, was only 7257, whilst the outlay at the works, together with the salaries and travelling expenses of their two agents, amounted only to 1154, up to April 12, and the secretary's salary, offices, and all the London expenses for the year were only 157. He challenged, therefore, any company to show a more favourable and economical outlay of capital. About 10,000 shares had been allotted, leaving 90,000 shares in hand; but he recommended the company not to issue any more shares at present, but to raise the required capital—say, 5000—by an issue of debenture bonds, to be offered in the first instance to the existing shareholders. These bonds to bear 12 per cent. interest, but to be redeemable for shares at par when the dividends of the company exceeded that amount. He begged to call upon the consulting engineer, Mr. Collett, for further particulars respecting the present workings at the mines.

Mr. COLLETT stated that the last reports were highly favourable. It was true that the sinking of Capita Simão shaft had been discontinued until a water wheel was erected for the purpose of efficient drainage, and also that the encouraging prospects at Mato Mato had been stopped by a sudden landslide, which, unfortunately, killed one of the best gold washers. But similar accidents and delays occurred in all mines. He calculated that the main lode at Rumao would be reached early next month, when the following result from that mine alone might be confidently expected:—8½ tons a day, yielding 4 cts. per ton, can be passed daily over the strakes and through the mill, equal to 10½ a day, or 26½ per month, at a cost not exceeding 130, a month; an amount not only sufficient to meet current expenses at Rumao, but to pay 100 per cent. profit. A few hundreds would be required to make Mato Mato and Macacos equally profitable, and probably 1000, would be spent in sinking the Capita Simão shaft to the level where the poor negroes in their golden collars have laid since the superincumbent earth fell in and crushed them to death. On the day when this occurred six heavy basket loads of gold had been raised to the surface, which the hard-hearted proprietor declared more than compensated him for the loss of his whole gang. He (Mr. Collett) would not detain the meeting any longer. He had managed Brazilian mines himself, and had always predicted that the St. John del Rey, with capital and good management, would rise to be the fortune which it is now doing. He had also great confidence in his son, who was the present cashier and accountant at Rumao. The name of Capt. Martin was well known in Brazil, where he had lived nearly all his

life, and whose mining ability was universally recognised. With such officers at the works, and such an efficient, painstaking, and careful board at home, these mines could not fail to be a success, if only a very moderate amount of capital—say, from 3000l. to 4000l.—were placed at their disposal.

The balance-sheet, accounts, &c., were passed unanimously, and a cordial vote of thanks passed to the Hon. F. Walpole, M.P., for his efficient conduct in the chair. Before separating several shareholders offered to take a considerable number of the debentures as soon as they were issued.

DEVON GREAT CONSOLS MINING COMPANY.

The half-yearly meeting of shareholders was held at the offices, Gresham House, on Thursday.—Mr. W. A. THOMAS in the chair.

Mr. A. ALLEN (the secretary) read the notice convening the meeting, and the minutes of the last were confirmed. The accounts (an abstract of which appeared in last week's Journal) were taken as read.

The CHAIRMAN said the accounts placed the proprietors in full possession of the actual financial position of the company, but if there was any particular item upon which more detailed information was required he would be glad to afford it. They were at the present moment almost an experimental mine, seeing that many of these new works had been commenced with the hope of finding other deposits of ore. Capt. Richards would have been present had he not been taken suddenly ill; but his report, which he (the Chairman) would presently read, showed that the works now being carried on were those contemplated when the company was registered, with limited liability; consequently a large sum of money had been expended upon these works, as had been seen by the accounts. The directors had but little to say, but, agreeably with the constitution of the company, had prepared a short report, which was as follows:—

The directors of the Devon Great Consols Company (Limited) have caused the account of receipts and expenditure to be circulated amongst the members, in conformity with the Articles of Association of the company. The directors have endeavoured to keep the expenditure as low as possible, without impairing the efficiency of supervision or the progress of operations, and regret the receipts, owing to the continued depression of copper ore, are so inadequate. At the same time, it must be remembered that the liabilities are reduced to a minimum, and that the property and assets of the company are of considerable value as a young concern. The new leases are still in the hands of the solicitors, and, consequently, the rebate claimed on the dues, already paid in full, is shown as an asset due to the company. Capt. Jas. Richards' report will give the details of the progress of operations at the mines during the last six months, which, although slow from the very nature of the work, continue to give encouragement to hope that ultimately results will be obtained which will justify the expenditure incurred. The directors and auditors, who retire in accordance with the Articles of Association, being eligible, offer themselves for re-election.

Capt. Richards' report on the operations at the mines during the last six months was also read. The ore ground discovered and in reserve is estimated at 20,485 tons, and arsenic muddle 16,840 tons.

The CHAIRMAN said that report was very satisfactory.—Mr. RAIT proposed that the report and balance-sheet be received and adopted.—Mr. J. ROBERTS seconded the proposition, which was put and carried unanimously.

Upon the proposition of Mr. D. BROWN, seconded by Mr. CHATFIELD, the sum of 30 guineas was placed at the disposal of the directors for promoting the education of the children of the miners employed at Devon Great Consols, and other charities. Mr. MORRIS said there were between 50 and 60.—Mr. TAYLOR said the sum appeared small for the promotion of the education of that number of children.—Mr. MORRIS said when the company was in a better position the annual vote was 100 guineas, but lately it had been reduced to 30 guineas, of which 20 were given to the school and 10 to the dispensary.

A SHAREHOLDER hoped the time was not far distant when the vote would be increased to 100 guineas.

The CHAIRMAN said the directors would not be found illiberal in that respect when the financial condition of the company justified it.

Mr. MORRIS, in reply to further questions, stated that the new lease was still in the hands of the solicitors of the Duke of Bedford. The lease contained certain clauses quite incompatible with the interests of the company, and which he as Chairman could not sign, and they declined to pay the rebate of dues until the lease had been signed.

A SHAREHOLDER said he knew from experience they could not expect anything like liberality from the Duke of Bedford's solicitors.

Mr. BROWN suggested that the sinking of the shaft at Wheel Josiah should be discontinued until the rebate of dues had been settled.

The CHAIRMAN said that would be a most dangerous thing to attempt, because if the company committed such a step the Duke of Bedford had the power to return to the directors, and they would lose any chance of getting the rebate in future. He thought, too, the matter was now so nearly complete that no fear need be entertained about obtaining the rebate; the amount had been agreed upon, therefore it was a mere matter of delay of payment. It was most important the lease should be perfectly correct in form, and hence the delay in having the objectionable clauses removed or modified.

Mr. TAYLOR asked if these deep mine explorations were likely to be of any duration?—The CHAIRMAN said the ground had been very hard, so much so that they had not been able to sink more than from 3 to 4 feet per month, but now the ground was more favourable, which enabled them to sink about 8 feet per month.

The CHAIRMAN said the ore on the north of the mine and sinking the pit work had cost an immense sum of money, but the explorations would henceforth be proceeded with from day to day.

Mr. TAYLOR asked if the Duke's agent was satisfied with the progress made?—Mr. MORRIS: Perfectly satisfied, and had the matter of the lease been left to him it would have been settled long since—all that was wanted was the usual covenants. The rebate of the dues was contingent upon the agent being satisfied with the progress made.—The CHAIRMAN said as the amount of rebate had been agreed to, it was clear the agent was satisfied.

Certificates from the engineer were placed upon the table to the effect that the machinery and raising gear had been working order and repair, and also that the manner in which the arsenic works to the effect that all this department was in good working order, and that the mines were well supplied with all stores for several months to come.

The retiring directors—Messrs. T. Morris, W. A. Thomas, W. Morris, and J. Blackwell, were re-elected directors, with a remuneration of 400 guineas for their services during the past year.

The CHAIRMAN, in acknowledgment, assured the proprietors that the board would continue to give the same unremitting attention to the interest of the mine as they had done during the last 30 years. Besides which each (with their friends) held such a large stake in it that its interests were watched with the sedulous care that such a large stake in it would naturally excite.

Mr. D. BROWN and Mr. Chatfield were re-elected auditors.

Mr. MORRIS, in reply to a question, stated that the last sale of ore was exceeded by the actual amount estimated by 370l.—the estimate having been 3000l., and the amount realised 3270l., an improvement of 77 per ton having taken place in the price of metal. If the same results could be shown during the next six months a profit would be realised, which would prevent the necessity of a call.

A unanimous vote of thanks was passed to the directors, Mr. Morris, the manager, and the officers of the company for the energy and ability they continued to manifest in the development of the mine.

Upon the proposition of Mr. TAYLOR, seconded by Mr. RAIT, a unanimous vote of thanks was passed to Mr. A. Allen, the secretary, for the courteous and vigilant manner in which he continued to perform his duties.

The proceedings then closed.

WEST CARADON MINING COMPANY.

A general meeting of shareholders was held at the company's offices, Austinfriars, on Wednesday.

Mr. WATSON in the chair.

Mr. W. J. LIVINGSTON (the secretary) read the notice convening the meeting, and the special report of Capt. W. Hancock and accounts, showing a debit of 604l., were submitted.

Capt. Hancock reported that on Allen's lode the skip shaft is sunk about 50 fms. below surface; the lode is, however, very poor here for some time, owing to the lode, he was informed, being poor and hard. The principal workings of late have been at the 55 and above. This level has been extended east of the shaft from 70 to 80 fms., and home to Hallett's cross-course; in this drive good shoots of ore have been driven through, and taken away in back and below. About 13 fms. west of the cross-course a cross-cut has been put out, and the lode intersected; at this point it produced 2 tons of copper ore per fathom. A rise has been put up in the back of this level, inside the cross-course, about 10 fms., averaging 2½ tons per fathom. A slope is being worked in the west end of rise and back, by four men, worth about 2½ tons per fathom. At the top of this rise a level is being driven east, by four men, at 30 per fathom, worth 1 ton of ore per fathom, and in from Hallett's cross-course; the latter is being driven by six men, at 11½ per fm., worth 1 ton of ore per fathom—a kindly lode. When these places are communicated it will, from all appearance, open out a piece of tribute ground; the ground above this is whole to surface. These are all the operations that are being carried on in the work. There are two tribute pitches in work—one in the back of the 42, and the other in the back of the 32—by six men, at 13s. 4d. in 12; they pay all cost. In the back of the latter I find the ground is also whole to surface, and of a kindly appearance for making deposits of ore, and would advise going up a few fathoms from the back work this ground would be to sink the new shaft on Hallett's cross-course, which has already been commenced. This is a matter of time and money, and then he almost fears there will not be much chance of finding it profitably productive. There is a great number of fathoms of ground also open west of skip-shaft; the ground is hard, and at present unproductive. In order to carry on the parts that are at present being operated on, provided they maintain their present value, about 25 tons of ore per month may be obtained; and if they improve more, cost to do it about 200l. per month. By stopping the bottom of the 55, east of the skip shaft, the water would go back in the old mine; you could then work the ground above with but little water charges, merely just work the engine a few hours a week for water for dressing purposes and condensing drawing engine. The cost of stop-work the ground he was not prepared to say, as it must be levelled first. There is a good bid of spare material about, which he thinks at the present price they might suit to assist them. In conclusion, the mine is very poor, and but little returns to assist further development.

The CHAIRMAN said that they had heard the notice read, and were, therefore, aware that the object of the meeting was to pass a resolution for the voluntary winding-up of the company, and to appoint two liquidators, and he could only say that the committee much regretted that they had to meet the shareholders for these objects. They would recollect that some time since it was thought desirable to obtain a report from Capt. W. Hancock, who was intimately acquainted with the district, and had had much experience there; his report had been printed, and circulated amongst the shareholders. The depression in mining during the last year, and more especially in the last six or eight months, had been intense; in fact, ever since he had been connected with mining (a connection of nearly 50 years) he had never witnessed such depression, more especially in Cornwall. The result of this had been that half of the mines in that county had succumbed, so that West Caradon would not be an exception. He had always believed that they had such indications near the surface as to lead them to expect that long ere this they would have something good to fall back upon, but the levels certainly had not turned out as they had anticipated; yet, had the price of copper kept at anything like a reasonable figure, the mine would, no doubt, have been able to pay its way until they got down to rich ore. From 130 tons per month they had gradually fallen off to 25 tons per month, and he (the Chairman) believed that the last two months yield amounted to 34 tons only, or 17 tons per month; and to get out that it cost them between 2½ and 3½ for each 1l. worth of copper raised. Under these circumstances, the shareholders would agree with the committee in determining upon winding up and appointing liquidators. The committee regretted calling them together for such a purpose, but they would see that there was no alternative. He was himself the largest shareholder, so that he (the Chairman) would, of course, support whatever step he thought best calculated to benefit them. The arrears of call had been put into the hands of the company's solicitors, and much had been recovered, though much was still outstanding; of the latter nearly all was considered good. The committee believed that if they sold off now their assets would fully cover their liabilities. There was about 604l. against them, and the machinery was worth more than that, so that they might have something to return, especially if they should be able, as they hope to be, to sell the mine as a going concern. At present the average price of copper was only 3½ per ton. He concluded by formally moving that the company be wound-up voluntarily.

A SHAREHOLDER said that at the last meeting Capt. Richards was sanguine to the result of certain sinking; he would, therefore, like to know how much Capt. Hancock's report differed from his opinion?

The CHAIRMAN replied that they coincided, but the price of ore going down the price of materials going up had told very much against them, as it had against all copper mines; in fact, few copper mines were now at work in Cornwall.

Mr. PAYNE then seconded the resolution for voluntarily winding up, which was put to the meeting, and carried unanimously.

Upon the proposition of Mr. ST. GEORGE, seconded by Mr. DAVIS, it was unanimously resolved that Messrs. P. Watson and W. J. Livingston be appointed liquidators, and that 50l. each be voted as their remuneration.

The CHAIRMAN remarked that a special meeting would have to be called to confirm the resolutions just past, and he would remind them that before that confirmation was considered it would be desirable to pass a special resolution as to remuneration to the directors for their past services, as that matter would be out of the shareholders' hands when the liquidation was finally determined upon. The meeting then separated, with a vote of thanks to the Chairman and directors.

HINGSTON DOWN CONSOLS MINING COMPANY.

The second ordinary general meeting of shareholders was held at the offices, St. Andrew's House, Cornhill, on Wednesday.

Mr. W. A. THOMAS in the chair.

Mr. LAWS (the secretary) read the notice convening the meeting. The report of the directors stated that the same adverse circumstances referred to in the last report as operating against the interests of the company still prevailed, although the last sale showed a profit upon the month's operation, which encouraged the hope that the directors would be able to report more favourably at the next meeting, in November. The accounts showed a balance of assets over liabilities of 6740l. 15s.

The report of the agent was read, as follows:—

May 25.—I beg to hand you my half-yearly report for the meeting appointed to be held on Wednesday next, the 27th inst., showing the work accomplished, and the present state and future prospects of the mine.—Bailey's Shaft: The 150 has been driven west 3 fathoms, and the lode, which proves to be 5 ft. wide, is kindly, being composed of capel, muddle, quartz, peach, and a little copper, and occasionally good stones of tin ore. This drive will have to be extended some 15 fathoms further before reaching the dip of the course of ore coming down from the 140 above. At this level, the 150, top and trip plats have been cut, and the skip road has been brought down from the 140 for the proper discharge of the stuff. The 140 has been extended west 14 fathoms, or a total of 71 fathoms, and for 55 fathoms of this length the lode proved continuously productive, worth 70l., 40l., 20l., 10l., and 5l. per fm. The lode for the last 2 fms. has been disordered by cross-branches, and for the present, although promising, is without much ore. In the bottom of this level, the 140 and 80 fathoms to the west of the shaft, a winze (Cocking's) is being sunk, which winze is down 8 fathoms, and for the whole length sunk the lode is a good course of ore; worth for length carried (9 ft.) 50l. per fathom, and at the extreme depth reached it is of the same value. In the back of this level, the 140, there are three stopes being worked, and the lode is worth, respectively, 40l., 20l., and 20l. per fathom. At this level also (the 140) the top and trip plats have been enlarged to facilitate the discharge of the stuff. The 120 has been extended 5 fms. west, and has intersected the cross-course; the lode for 2 fathoms of this length proving worth 10l. per fathom. This level has been driven through the cross-course, which proved to be 12 ft. wide, and beyond it 7 fathoms. The lode immediately to the west thereof is worth, for the first 3 fathoms, 20l. per fathom. In the present being sunk, which winze is down 8 fathoms, and for the whole length sunk the lode is a good course of ore; worth for length carried (9 ft.) 50l. per fathom, and at the extreme depth reached it is of the same value. In the back of this level, the 140, there are three stopes being worked, and the lode is worth, respectively, 40l., 20l., and 20l. per fathom. At this level also (the 140) the top and trip plats have been enlarged to facilitate the discharge of the stuff. The 120 has been extended 5 fms. west, and has intersected the cross-course; the lode for 2 fathoms of this length proving worth 10l. per fathom. This level has been driven through the cross-course, which proved to be 12 ft. wide, and beyond it 7 fathoms. The lode immediately to the west thereof is worth, for the first 3 fathoms, 20l. per fathom. 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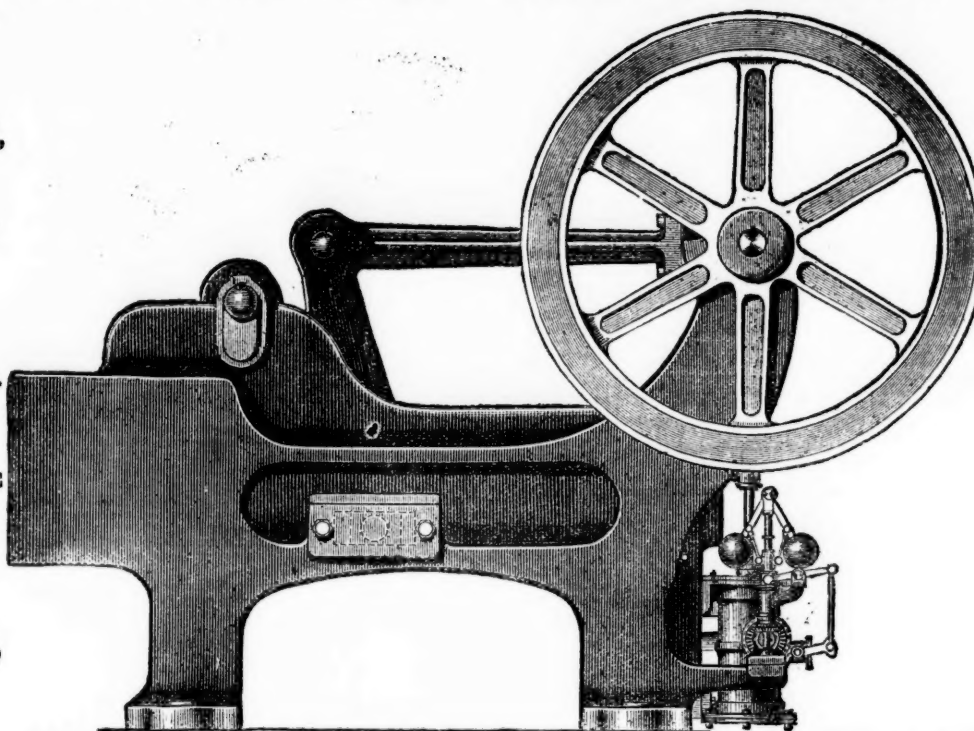
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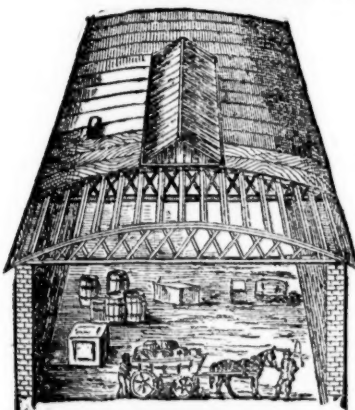
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